LITTELL'S LIVING AGE.—No. 244.—20 JANUARY, 1849.

From the Christian Remembrancer.

A Description of Active and Extinct Volcanoes, of Earthquakes, and Thermal Springs, &c. By CHARLES DAUBENY, M. D. F. R. S. London: Richard and John E. Taylor. 1848.

DR. DAUBENY considers it necessary, in his preface to the first edition of his work on volcanoes, to offer some explanation for such a task having been undertaken by a professor of chemistry. His chief aim, indeed, is to prove the close connection between the smaller phenomena of chemical action and the greater works of nature which are the subject of this book; yet he feels that the importance of the latter merits an historian whose attention is exclusively devoted to it. He is afraid that his remarks may be thought by some unphilosophical, because they "smell of the laboratory." The professor's modesty prompts him to make these apologies; but his confidence in performing the task contradicts any impression that he really considers the work before us as out of his province. And on such a subject—one which admits of great difference of opinion, and of much wildness in the minds of mere theorists—we confess to having the greater confidence in the views advocated by one who has been led to the subject through more ordinary scientific researches, and who, therefore, has dealt with causes before he comes to results, and arrives at certain conclusions from a preconceived opinion of the sufficiency of certain means, rather than from a determination to propound an ingenious theory to account for the tremendous operations of the interior of this globe. The practical chemist of the laboratory, who now gives us the result of his more extended investigation, is, moreover, fully aware, in answer to the charge of his views being unphilosophical, that true philosophy ever compares great things with small, and especially delights in discovering a grand unity of cause for most diverse results; minute analysis, the division of matter into its smallest atoms and most secret elements, with all their multiplying essences and subtle influences, have thus been a favorite theme in all ages, with those who have aimed at philosophy, whether their contemplations have been to the advantage of science, or merely to the confusion of their own thoughts.

We have in the book before us a vast catalogue of volcanic phenomena, collected from personal observation in part, but chiefly, of course, from other sources. The whole world is traversed to record the history of fire. Yet we cannot say that the most is made of such material, as an attractive or amusing book. All has been sacrificed to its scientific object, which is to advocate the chemical theory. There are many descriptions interesting, of course, in themselves; but other parts are uninviting to any one reading for general information, without perfect knowledge of the phraseology of science. There is also an absence of the contemplative spirit of Humboldt and other philosophers, which adds so great a charm to their writings. We think this is a pity, since it must prevent the work being popular; and, although it may be the more valuable as a scientific treatise, must limit the interest which such a valuable store of information is calculated to excite. Perhaps, however, it is almost unavoidable for such a mass of facts to be collected without assuming too much the character of a book of reference for the general reader; and we cannot but acknowledge that we are under great obligations to one who thus collects material for future use, with so little of that philosophical egotism which deals with theory rather than fact, and loves to obtrude the author's idea of what may be, rather than what is.

The general argument of the work is, first to show a unity of cause for many phenomena, and then to establish chemical action as that cause. Extinct and active volcanoes, earthquakes, and warm springs, are all attributed to the same internal combination in their different degrees of activity and power; and all the trappean rocks which are so scattered over the world, are brought in to bear testimony to the same origin. There is, then, a distinct theory as the object of the professor, though urged with so much moderation and modesty. The chemical theory was started mainly by Sir Humphry Davy, though he rejected it in his old age, and left it to be followed out by its present teacher. The cause of its former rejection by so great a philosopher, himself its parent, is stated by Dr. Daubeny to have been a misapprehension as to the nature of volcanic products. The emission of inflammable gases would be an essential concomitant of chemical action. These were supposed not to exist when Sir Humphry Davy gave up his theory; but, as it is now discovered that they do, that faithless desertion of the offspring of his youth is no argument against it.

To understand clearly what volcanic or trap rocks are, and so to connect together ancient and modern volcanic phenomena, it will be necessary for the unscientific reader to have fresh in his mind the general condition of the earth's surface. We will, therefore, attempt to accomplish this; and as we believe that considerable ignorance exists as to the rudiments of geology in otherwise well-informed persons, we will take the liberty of being elementary in order to be also brief.

The various materials which compose the surface of the earth, as far as our investigations have carried us, are divided into unstratified or igneous rocks, and stratified rocks bearing witness to the

action of water. Granite in all its varieties is of the former class, and all above that of the latter. Following, therefore, the *undisturbed* order of things, we take granite as the foundation, the bottom of which has not yet been discovered. On this foundation there are a vast number of strata, divided generally into three great periods. The first period begins with gneiss, mica schist, clay slate, which are apparently the result of violent action on the granite, grinding it and laying the broken fragments on its surface. Over this are the Silurian rocks, and the old red sandstone formation, the carboniferous or mountain limestone, gritstone, the coal formations, and the magnesian limestone. The second period is composed of the new red sandstone, the oolite formations, and the chalk; and the third, of London clay and alluvial deposits. Throughout the first period there would appear to have been most tremendous convulsions on the surface of the earth; one stratum lying over the ruins of another, itself, when tossed in the same wild confusion, to be the foundation for a still higher deposit. All these strata, however, are not to be found lying over each other in any given place on the earth's surface. On the contrary, the original granite is often exposed, and all the superincumbent beds generally deviate from the horizontal line. Sometimes, indeed, they are even vertical, but more commonly have a gradual dip away from the more ancient projecting rocks. The obvious result of this is, that the ends of all the strata are exposed to our view more than the flat horizontal surface. In travelling, therefore, through a country away from the granite or early rocks, we shall pass over all the various formations as they come up to the surface, or, as it is called, basset out. We will illustrate this by the example of England.

In England the strata basset out in a line running from north-east to south-west, so any one travelling in that direction might be on the same description of ground from one sea to another.

On the contrary, if he travelled from north-west to south-east he would cross the whole, and be changing his scenery every few miles.

The granite we only find in the extreme west of the system thus marked out—in Scotland, the island of Anglesea, and in the south promontory of Cornwall and Devonshire. If we imagine some one taking a walk from Anglesea to the eastern coast, he will meet the edges of all the strata as they, one after another, come to the surface; and it is curious, that, as a general rule, he will ascend short steep hills and descend long slopes. He will pass over the wild scenery of North Wales, which is the grand breaking up of the original granitic substance of the earth; he will traverse the other strata of the first period, thrown together in inextricable confusion, though still preserving everywhere tokens of their proper relative position; the romantic scenery of the mountain limestone being followed by the gritstone or moorland; after which come the coal districts, the magnesian limestone, and the extended plains of the new red sandstone. Having gone thus far, he has arrived at a line drawn from the north of Lincolnshire to Dorsetshire. All the country to the east of this line is much more regular, in a geological point of view, as these later deposits have not undergone such violent convulsions as the earlier. Our traveller will meet the various oolite formation on which rests the counties of Lincoln, Northampton, Oxford and Gloucester. A range of chalk will then appear from Norfolk to Wiltshire, succeeded by the London clay, and the alluvial deposits of the east coast.

Those who knew all this before, perhaps will excuse our digression from the immediate subject, since we have introduced it in order to explain clearly the nature of trap rocks. Rising up through the depositary strata we have described, it frequently happens that there are veins of rock, as if forced from below when in a molten state, which, on arriving at the surface, either form isolated rocks, or spread over the ground, assuming almost the appearance of a stratum—especially, as is often the case, when other stratified formations are laid over them. These veins come through even granite: they abound in the first period, and occur sometimes in the chalk. They are known by the various names of basalt, greenstone, serpentine, syenite, clinkstone, and trachyte; which latter is but a generic term for a large class of rocks, characterized mineralogically by their harsh and gritty feel, together with the frequent presence of crystals and glassy felspar. All these rocks, therefore, which go under the general designation of trappean, have their origin from a molten mass below the known surface of the earth; their varieties, as seen by us, depend on the constituent materials of which they are made, and also very much on the manner in which the process of cooling was allowed to take place.

If molten minerals cool rapidly in the open air, they form a very different substance to what would result if cooled very gradually and under great pressure.

To this we may reply, that heat affects a mineral in two ways, according to the rate at which the subsequent cooling is allowed to proceed.

When the latter takes place rapidly, all traces, not only of crystallization, but even of segregation of parts, will be obliterated, and the entire mass will assume, throughout, a uniform texture, like that of glass.

In such an instance as this, however, we do not require any such test as the one proposed, because the vitreous character which the whole presents sufficiently reveals its igneous origin.

But in the case of those substances which have returned more slowly into a solid state, and which in consequence have acquired a stony aspect, there appears to be always an exertion of the chemical affinities subsisting between the several constituents of the mass, sufficient to cause the production of distinct minerals, even when the latter are so intimately blended as to present a uniform appearance to the eye.—P. 10.

In these rocks we find every variety of composition, from a substance almost resembling granite,

to modern lava. They are the link between the most ancient tokens of volcanic action, and the mountain which we may now see burning before our eyes. The analogy is most close between the two; and the differences that exist are so plainly accounted for by circumstances, that they confirm their common origin. Before, however, we come to the consideration of what this origin is—in fact, to the theory of volcanic action, we will follow Dr. Daubeny in his travels and researches, and lay before our readers a few of the facts we have to deal with. Whatever dispute there may be about the cause, the effects are most obvious; though, even here, it is more difficult than might, perhaps, be imagined, to collect anything like a systematic account of them. The remains of old convulsions have often the green mantle of nature kindly thrown over them, while a personal investigation of volcanoes in action is generally a matter of great chance, and also of considerable peril to those who are lucky enough to have the opportunity.

All parts of the world come in for their share of notice in this valuable collection. Europe and its adjacent islands have been visited by the professor in person; while for the rest of the world he is indebted to other sources. Asia, Africa, and America, are brought in review to disclose their fiery histories; the islands of the Atlantic, Pacific, and Indian oceans, tell the same tale. The gigantic icebergs of the South Pole gleam with volcanic flames; and the bottom of the sea itself would appear to be by no means unacquainted with some vast internal power, by which its own level is being constantly affected.

No volcanic region has been so accurately examined by our author as the neighborhood of Auvergne, in France. There have been no symptoms of activity within historical times; but the whole country is full of most sure tokens that the powers from beneath did at one time, and for a long series of ages, most grandly boil over on the surface. The most recent are thus described:

> The modern ones in Auvergne are more cellular, and have in general a harsher feel, with more of a vitreous aspect, their surface presenting a series of minute elevations and depressions, and the scanty portion of soil which covers them affording but little pasturage, and that generally of the worst description.
>
> The mountains referred to this division constitute a chain which rises considerably above the elevated granitic platform on which they rest, and extends at intervals over a space of above eight leagues from north to south; from whence the rocks which compose them may often be traced a considerable way into the valleys contiguous. Above sixty of these eminences might, I believe, be enumerated within the boundary marked out; but as their number renders selection necessary, I shall simply notice such as are most remarkable, beginning with that of Volvic near Riom, the lava of which furnishes a considerable part of the building-stone used in that neighborhood, and, in spite of its porous character, is exceedingly durable.
>
> The fact of its having descended in a liquid form from the mountain above, and that at a period subsequent to all the great revolutions which have changed this portion of the face of our planet, is demonstrated by the exactness with which the stream has moddled its course to the slope of the valley; and that its fluidity was owing to heat, is evident enough from its porous texture and semi-vitreous aspect; so that its connection with volcanoes now in activity, seems sufficiently apparent. On the summit of the Puy de Nugere is a bason-shaped cavity of an oblong form, broken away on the side down which the lava has taken its course, and, notwithstanding the changes which time has effected in its form, still retaining marks of having been once the crater from whence the lava of Volvic was ejected.
>
> It is interesting to remark, that the stream in its descent appears to have been arrested by a sort of knoll of granite, which, probably rose considerably above the general level, and, by the obstacle it opposed to its progress, caused it to divide into two branches, between which this little granitic eminence is seen protruding—a solitary vestige of the rock which formerly existed on the surface, but which is now overspread with lava. The two branches of the main stream appear to have become reünited below, and having descended the slope of the hill, to have spread themselves over the valley of Volvic, extending to within a mile of the town of Riom.—Pp. 24, 25.

In a region such as this, we have a most perfect model of the result which volcanic action ultimately has on the face of the country. The immediate effects of an active volcano prevent our judging so clearly what this will be. In central France, however, we see the process by which many a hill and dale, now reposing in the entire forgetfulness of any violence, were once modelled by the thunderings of volcanic action. Take, for instance, the following account of the influence of Puy de Côme on the face of the surrounding country:—

> Still more interesting, from the changes it has produced in the configuration of the country, is the lava of the Puy de Côme, a mountain a few miles to the south-west of Clermont, originally described by the Comte de Montlosier, the well-known author of an ingenious Essay on the Theory of the Volcanoes of Auvergne, published quite at the commencement of the present century.
>
> The lava that has flowed from the hill above mentioned, divides, he says, into two branches, one of which flows directly into the bed of the river Sioule, whilst the other takes the direction of a place called Tournebise, reaches the village of Pont Gibaud, and terminates, like the other, by flowing into the bed of the river, about three miles lower down.
>
> A torrent of this description might naturally be expected to effect singular changes in the face of the country which it traverses. Accordingly, we shall find that it has blocked up a little valley which formerly seems to have had a drainage to the west, on the side of Chambois and Masayes, and has converted it into a sort of swamp, known by the name of the Lac de Côme.
>
> Lower down, the same lava has occasioned still greater changes. The rivers Sioule and Monges formerly ran parallel, in a direction from south to north, and entered the plain of Pont Gibaud by two

defiles, separated by the intervention of a line of hills. But one branch of the lava of Côme has so obstructed the course of the river Sioule, that its waters have been turned aside to the left, where they have worked themselves a passage through an argillaceous hill, made enormous excavations in it, and in this manner have reached the bed of the river Monges, a league and a half higher up than they would naturally have done. Compelled, however, to flow in a direction contrary to the slope of the country, a large portion of the water constantly stagnates in its channel, and has formed a swamp which goes by the name of the "Etang de Fung," whilst a portion only of the stream continues to flow onwards by its original outlet.

Now the changes here brought about in the physical condition of the country through the agency of lava-streams, which, according to the definition I have above given, would be regarded as modern, afford some of the most instructive lessons that can be set before us, how impracticable is the attempt to tie down the operations of nature within the hard lines of our artificial classifications.

We see presented to us in this locality instances of a lava which proceeded from a volcano of apparently modern date, its crater being still entire, and its course being through a valley antecedently filled up, at least in part, with alluvial matter. Nevertheless this current, by obstructing the course of a stream, has caused the latter to work its way subsequently through a mass of alluvium no less than 140 feet in thickness, and even through twelve feet of the subjacent gneiss, thus forming a sinuous valley of about two miles and a half in length. Moreover, the river Sioule has in another place cut for itself a channel through the obstructing bed of lava, which consequently exhibits a perpendicular escarpment near the town of Pont Gibaud nearly fifty feet in depth.

Such facts as these have been seized upon as proofs, that valleys in general may be produced by existing rivers, and that there is consequently no natural line of distinction between *post-diluvial* and *ante-diluvial* volcanoes.—Pp. 26, 27.

Great variety is seen here in the means by which the molten masses from beneath found their way upwards. Sometimes a complete crater still remains; sometimes an imperfect ruin of one; and sometimes the lava is discovered to have issued out from holes in the sides of a mountain. The two first we will illustrate by the following extract:—

A somewhat similar circumstance to that which has been above noticed with respect to the Etang de Fung has happened in the case of the lake of Eidat, which seems likewise to have been formed originally by the stream of lava now stretching across it. In this case, however, a still greater impediment existing to the escape of the waters by any other outlet, they have, in process of time, succeeded in cutting themselves channels through the parapet of lava thrown across them, the projecting portions of which stand forth like islands in the midst.

The stream of lava that has occasioned this impediment appears to have been furnished by one of three mountains, all of which have given out *coulées* flowing in the same direction, and therefore intermixed one with the other. The most considerable of these mountains is called the Puy de la Vache, the whole of which is composed of scoriaceous lava very different from that of Volvic, as it contains much iron in the state of magnetic, as well as in that of specular iron ore, the oxidation of which imparts a general redness to the rock, and likewise occasional crystals of augite and olivine. There would seem to have been formerly a crater on the summit, three sides of which are now standing, whilst the fourth was, perhaps, broken away by the stream of lava which descended from that quarter. The *coulée* is easily followed with the eye along the valley as far as the lake, in consequence of the irregularities of its surface, and the ridge which it forms above the level plain.

The most complete crater, however, which exists in Auvergne is that of the Puy Pariou, north of the town of Clermont. It is perfectly round, and, according to M. Ramond, more than 250 feet in depth. Its structure is simple enough, as it consists wholly of loose masses of slaggy lava, sufficiently decomposed to allow of the growth of turf, so that cattle are seen tranquilly grazing within the very spot which once constituted the vent for the pent-up energy of the volcano. It has given off a stream of lava which may be traced southward to the place called "Les Barraques," where, meeting with a projecting knoll of granite capped with ancient lava, it divided into two branches, which take different directions, but nevertheless alike descend the slope of the granitic hills intervening between that spot and Clermont, terminating finally near the entrance of the valley in which that city is situated. —Pp. 28, 29.

Puy Graveneire is a striking instance of lava penetrating the sides of a mountain, that mountain itself being the effect of previous volcanic action.

But amongst the modern volcanoes met with in this neighborhood, there is probably no one, upon the whole, more interesting than the Puy Graveneire. This mountain, which lies within two miles of Clermont, seems, as we approach its summit, to consist of an entire mass of scoriform and highly cellular lava, so that we may in some degree comprehend the origin of a ludicrous opinion ascribed to a professor of the Academy of Clermont, when the volcanic nature of the rocks of Auvergne was first asserted, and maintained by an appeal to the structure of this particular mountain, who, it is said, accounted for the scoriæ found on its surface, by gravely remarking that he had heard of iron-foundries having formerly been established on the spot. Notwithstanding such strong indications of its having been in a state of ignition at a comparatively recent æra, no trace of its crater can be detected; nor has it that abrupt and conical form characteristic of volcanic hills, being rather a long, round-backed eminence, rising abruptly, indeed, on two of its sides, but to the north connected with the chain of the Puy de Dôme, and to the south reaching into the plain of Limagne. In spite of the absence of a crater, two streams of lava appear to have pierced the sides of this mountain through a bed of ancient basalt, which here caps the granite of the country. They have thence descended into the valley, one on the side of the village of Royat, the other on that of the Puy Montaudoux. These *coulées* display a singular intermixture of compact and cellular lava, the former generally occupying the centre, and surrounded by the latter variety, but without any marked line of demarcation between the two. The compact rock is a basalt, remarkable for its large distinct crystals of augite and olivine; and its being seen in connection with a lava of so cellular and vitreous an aspect affords, in common with the facts I shall detail with respect to the German volcanoes, a sufficient

proof that great pressure is not always necessary for the formation of such products.—Pp. 29, 30.

Though volcanic action has been extinct in central France within the times of authentic history, yet there are signs of some little life still remaining, like the faint breathing of one at the point of death, who has long lost the power of motion :—

Nor have we a right to assume an entire extinction of these processes throughout the district ; for the frequency of thermal and of acidulated springs —the copious evolution of carbonic acid which takes place, according to M. Fournet, in the mines of Pont Gibaud, as well as in other localities—the springs of bitumen also met with—and the abundant deposition of travertin now taking place near Clermont, where it has stretched across a rivulet, forming a natural bridge over it—cannot but be viewed as indications of a languid action of volcanic forces still continuing underneath.—Pp. 30, 31.

The scenery in this district is of considerable boldness, as we may gather from the following :—

The department of which Clermont is the capital has received its name from a mountain, which, as the highest in the province, and occurring in some degree detached from the rest, has acquired more importance than it might in other situations have obtained, although, indeed, its height is considerable, being 4840 feet. The Puy de Dôme, the hill to which I allude, is of a conical form, and remarkable for the distinctness of its outline, rising abruptly from the midst of a sort of amphitheatre of volcanic rocks, which it considerably overtops, but which, without much stretch of the imagination, might be supposed to have constituted the crater from whence this great central mass was protruded.—P. 35.

To judge of the material which composes these hills, we will take one as a specimen. The term *altered*, which occurs in the following extract, signifies in geology a change on rocks produced by heat or chemical action. Thus, a stratum of limestone would be *altered* by the proximity of a stream of molten lava. Statuary marble is the result of this particular case.

The fourth of these is a little hill south of the Puy de Dôme, called the Puy de Gromanaux, of which only one third part is trachytic, and this apparently a prolongation of the latter mountain. The last in the series is the Puy Chopine, which requires some more particular notice than the rest, from the singular confusion and anomalous structure of the rocks which compose it. Owing, indeed, to the quantity of debris which everywhere covers its sides, where not concealed by vegetation, it is difficult to determine with precision the position they occupy, or the relations they bear to each other. On climbing to its summit, I found, *in situ*, a rock, analogous to domite, unaltered granite, and a conglomerate with a granitic base, rocks which seem to be related to each other. Lower down I observed a granular hornblende rock, which appeared to pass into the granite ; and these four substances make up, so far as my observations extend, the higher portions of the mountain. Lower down we have lavas, both compact and vesicular, none of which, so far as I observed, occupy the summit, although M. Montlosier, who examined the spot doubtless with more attention, states that he saw one small portion extending thus high. It should be remembered that the Puy Chopine, even more than the Puy de Dôme, is encircled by an amphitheatre of hills, which are comprehended under the names of the Puy Chaumont and the Montagne des Gouttes. I examined these hills, and found them all to be volcanic, consisting chiefly of a tuff containing portions of scoriæ, and lavas of various denominations, all cemented together by an ocherous paste.—P. 37.

We now come to the more ancient rocks of the same district ; first passing through a kind of transition, or doubtful period :—

I have already admitted, that no decided line of demarcation exists between the class of modern and of ancient volcanic rocks ; for here, as in all other cases, though the extremes of a natural series may be as unlike as possible, there will always be certain connecting links which might seem referable almost equally well to either group.

Mr. Scrope, and subsequently Sir Roderick Murchison and Mr. Lyell, have afforded us a striking example of this in their description of the volcano of Chaluzet below Pont Gibaub, where a stream of lava may be traced from a worn-down crater situated on the western side of a conical hill, called the Puy Rouge, composed entirely of red and black scoriæ, and yet is seen distinctly resting upon a bed of pebbles which separates it from the subjacent gneiss.

The character of the hill from which it issues, the scoriaceous appearance of its own mass, its course in the same direction as that of the valley now existing, and its position incumbent on a bed of detrital matter, are circumstances which might entitle it to a place amongst the products of modern volcanoes.

But, on the other hand, the section which has been worked through the lava, the pebble bed, and the gneiss underneath, to a depth of not less than 400 feet, is of sufficient importance to rank as a valley rather than as a mere ravine, and thus to place the volcanic matter in the class of ancient igneous products, with which view, indeed, the basaltic character of the greater part of the lava-current, of which the vertical face is exposed at the point alluded to, seems more strictly in correspondence.

The lava of Chaluzet is not seen on both sides of the valley, and we have therefore, perhaps, no right to assume that it has been itself cut through by the waters of the Sioule ; but, at any rate, at the time when it was erupted, the bed of pebbles upon which it rests must have constituted the lowest level of the then existing valley, and the remaining fifty feet, or thereabouts, which have been excavated through the gneiss subjacent to this alluvial matter, are attributable to causes in operation since this very remote volcanic eruption.—Pp. 41, 42.

Those decidedly ancient bear a closer resemblance to the basaltic regions of Great Britain than what we have hitherto considered.

The basalt of Montaudoux, which Dr. Boué has remarked to be nearly identical in character with the rock of Calder, between Glasgow and Edinburgh, evidently belongs to an æra much more remote, and has been formed under conditions alto-

gether different from those of the scoriaceous lava of Graveneire, to which it is so contiguous.

The mountain Gergovia, too, situated a little further to the south, consists principally of a succession of beds of fresh water limestone; but these are intersected by strata of tuff consisting of a mixture of nodules of limestone and basalt, with kidney-shaped masses of chalcedony imbedded in volcanic clay and sand. A bed of basalt divides the strata of tuff, and the same material caps the fresh water beds, which, resting upon the tuff, form the upper portions of the hill. Elie de Beaumont appears to have proved that these apparently horizontal beds of basalt are in reality dykes intersecting the fresh water formation of the Limagne; but this fact only places in a stronger light their antiquity, as it is evident that they must have been injected before the excavation of the valley which the mountain of Gergovia overlooks. The fact is also important, as it may assist us in explaining the anomalous position which the basalt sometimes assumes with reference to the trachyte and even to the tuffs subjacent, both which it occasionally underlies, although its general relation to both these rocks indicates that it is of more modern eruption.—P. 42.

The frequent occurrence of dykes in the north of England seems further to connect this species of volcanic action in France with our own island.

I should also expect, from what I have since seen among the German volcanoes, that the basalt which caps the table-land of Mont Dor has been ejected through the medium of *dykes* rather than of *craters*, and it is therefore not improbable that those of the Grande Cascade de Mont Dor may be among the number of these vents. I am still, however, of opinion, that the dykes of volcanic tuff that occur in Cantal, of which several are mentioned by Steininger, and one has been noticed by myself in the communication alluded to, are nothing more than an uplifting of fissures that existed in the subjacent rock; and I am confirmed in this idea from having seen at the foot of the Siebengebirge, on the Rhine, similar veins of trass filling up the cracks in a rock of the same description which there encircles the trachyte.—P. 51.

The process by which a district, like the one we are speaking of, has been formed, as it were, through volcanic action is imagined as follows:—

Thus, during a period antecedent to that at which man and other existing species of mammalia first came into being—at a time when the lower parts of the country were still under water, but the higher had become peopled with various tribes of land animals, the neighborhood of the Puy appears to have been agitated by volcanoes, which, overspreading the country with their ejected materials, may have caused the destruction of the animals that existed there; and, according to M. Roux, by obstructing the drainage of the district, have raised the waters to a still higher level than before. The ejected materials, intermixed with fragments of older rocks washed down at the same time from the neighboring high ground, would be deposited at the bottom of the water, forming those immense masses of tuff which now cover the valley of Puy; and during the latter part of the period occupied by this process, the same volcanic forces which had before poured forth these melted materials, may be supposed to have elevated, from the midst of the then existing lake, the trachytic rocks which constitute the ridge of Mont Mezen.—P. 62.

This may seem to give these commotions an ancient date in the history of the world, but on this subject we extract the following:—

From his (Mr. Roux's) statement it would appear that the volcanic rocks of this neighborhood are of very different ages, although he infers the extreme antiquity even of the most modern of them by contrasting the depth to which they have been excavated, and the vast quantity of matter removed, with the almost imperceptible amount of decay which has taken place in the same rocks since the Christian era, as shown in the old Roman roads, none of which can be less than 1300 years old, by the side of which the rock has since undergone scarcely any sensible abrasion.

A limit on the other hand is set to the age that can be assigned to this volcanic breccia, by the circumstance of its being superposed on strata containing fresh water shells and bones of mammalia similar to those of the basin of Paris. Hence the eruptions to which the materials of this tuff owe their existence must date their commencement from a period somewhat subsequent to that of the eocene formation.—P. 60.

The eocene formation our ungeological readers must understand to have derived its name from being the first law of the present state of things.

But it is time now that we change the scene of our extracts; France has been dwelt on at some length, because our author paid great attention to this district, and therefore it may be considered as the one best calculated to be our model, from which we may understand the effect of volcanic action in remote ages.

Germany contains many relics of extinct volcanic action, but none in activity. The principal district where the former are discovered, is bounded on the south-east by the Moselle, on the north-east by the Rhine, on the west by the Ardennes and the other mountains round Spa and Malmedy, and on the south by the level country about Cologne. In many parts there are most curious basaltic columns, not unlike those of the Giant's Causeway in Ireland. An attempt has been made to prove activity within historic records, but we cannot say that the case is made out. Strange volcanic bombs are indeed found about the size of a man's head, and Tacitus is brought forward to bear testimony to fires bursting forth from the earth; but as it also appears that the inhabitants assailed these terrific fires with stones, and finally extinguished them with wet cloths, instead of standing on the defensive against such missiles, and rather taking care to keep out of the way lest they themselves should be the extinguished parties, we cannot place much confidence in the arguments on this side the question.

Hungary abounds with volcanic remains, and trachyte is there found in quantities to satisfy the ardor of the most zealous geologist. This mineral, so closely connected with Dr. Daubeny's best affections, is described by its devoted admirer to be thus arrayed:—

Trachyte, properly so called, is characterized by its porphyritic structure, by the scorified and cellular aspect which it has such a tendency to assume, by its harsh feel, and by the presence of crystals of glassy felspar, generally cracked, and sometimes passing into pumice. Besides these, which may be regarded as essential to its composition, crystals of mica and hornblende are often present, and all these minerals are united either confusedly without any apparent *cement*, or by the intervention of a paste of a felspathic nature, sometimes compact and sometimes cellular. This paste is generally light colored, though different shades of red and brown are sometimes communicated to it by the presence of iron; and there is one variety in which the paste is perfectly black and semi-vitreous, being intermediate in its characters between pitchstone and basalt, but distinguished from either rock by melting into a white enamel. Augite is sometimes present, and grains of titaniferous iron are often discoverable, but olivine rarely, if ever, occurs, and therefore appears to be the only mineral which has any claim to be considered as peculiar to basalt.—Pp. 119, 120.

Hungary, however, though so decked with charms, presents one feature not so pleasing to our author. His theory of volcanic action, as we will presently see, requires that it must be in the neighborhood of the sea. Now, Hungary is at a distance from it, and yet bears indisputable proofs of the greatest activity. This difficulty is obviated by supposing that the great marshes at the foot of the mountains of Transylvania once formed an inland sea; which, indeed, is very probable, even apart from its usefulness to a volcanic theory.

Italy presents a wide field for the investigation of volcanic phenomena, both extinct and in action. It would far exceed our present opportunity to go into a detailed account of this country; we will therefore confine ourselves to a few of the more striking features. The Lagunes in central Italy are curious effects of internal heat.

The Lagunes are artificial pools of water, occasioned partly by the rains of which they are the recipients, and partly by the drainings from the higher parts of the country, the contents of which are probably swelled, as well as heated, by the condensation of volumes of steam, which is continually finding its way upwards through fissures in the earth into the spots where the pools have been made.

As the water in these places is raised nearly to the boiling temperature by the passage of heated gas through it, the Lagunes generally emit a lofty column of steam, which first arrests the traveller's attention, and has consequently led to the adoption of the name *Fumacchie*, by which they are often designated.—P. 154.

The lake of Bolseno is also worthy of notice.

The volcanic tuff continues from Acquapendente to the Lake of Bolseno, which has been imagined by some to be the crater of an extinguished volcano; and although I am disposed to question this, not only from the great size of the lake, which is more than twenty miles in circumference, but also from its form, which is rather oval than circular, yet the rocks which are scattered round its borders betray a volcanic origin.

Bolseno itself stands upon an aggregate of scoriæ, rapilli, &c., united into a kind of loose conglomerate which forms precipices overlooking the lake. Clusters of basaltic columns, however, occur at no great distance from the town.

The modern city stands mouldering upon the ancient Volsinium—ruins, as Forsyth says, built upon ruins, yet both from its modern and ancient history a place of some interest.

Volsinium, it is well known, was one of the principal towns of Etruria, and the analogy of the modern name with the word Vulcan, especially according to the old spelling, [Bolcano,] may lead us to imagine that it derived its name from the homage paid to that god, originating in the *volcanic* phenomena which excited the fears of the earlier inhabitants. It is curious that the Volsci, as well as the Volsinii, inhabited a volcanic country, and it is known that particular homage was paid to *Vulcan* all over Latium.—Pp. 158, 159.

The dabbling of science in etymology, even in the case of our academical philosopher, has met with a sharp rebuke from the authoress of the "Sepulchres of Etruria," which is inserted in a note by the polite professor.

My idea of Bolseno does not at all coincide with yours, for there is no evidence of *my* people amongst their various sciences having ever cultivated geology. I believe them to have been *Assyrians* in the wide sense of that term, modified by Egypt, and and therefore look back to those two countries for the origin of their language and institutions. I daily expect to hear that their language has been traced in Lycia, Caria, or some of the many lands of the arrow-headed character. For this amongst other reasons I believe all their *Bols*, or *Fels*, or *Bels* to be the same, and usually have reference to בל, "Lord," or "Sun." The god *Bel*, I doubt not, was often fire; hence Vulcan, the son of Jupiter. Jupiter was the sun—the God of heaven. But Vulcan in Etruscan was Sethlan, not Bel.—Pp. 159, 160.

The professor of chemistry, however, in spite of this mistake, is a scholar, and has scholar-like tastes, as are contained in the following extract:—

The same cause also contributed to circumscribe my excursions in the neighborhood of Rome during the stay which in the year 1823 I made in that city, where, indeed, it must be confessed, the traveller, surrounded as he is by antiquities of such extreme classical interest, can hardly help being frequently called away from subjects of scientific inquiry. It has been said, that what Vesuvius is to Naples, the Coliseum and St. Peter's are to Rome; and as the scholar almost necessarily imbibes somewhat of the spirit of a naturalist during his stay in the former city, from his attention being so frequently directed to the movements of the volcano, so it is equally to be supposed that the study of nature will give place to that of art, whilst we are in the midst of the monuments of Roman taste and magnificence.—Pp. 162, 163.

The fables of antiquity, however, did not quite extinguish our author's calm reasoning, even in the eternal city, as we may judge from what follows:—

I saw enough, however of the physical structure of the neighborhood to be persuaded, that the inter-

pretation which Breislac has put upon some well-known fable or traditions handed down to us by ancient writers, in proof of his idea that ancient Rome occupied the site of a volcano, as altogether untenable, and that his assertion as to the capitol of the eternal city—"*Capitoli immobile saxum*"—having been erected on the tottering edge of a crater, however well-suited it may be to point an antithesis, or to illustrate the vanity of human pretensions, rests on too slender grounds to deserve a place in a scientific treatise.—Pp. 163, 164.

Southern Italy, or the kingdom of Naples exhibits volcanic action in its greatest variety. We there find extinct volcanoes of two distinctly different periods, and we also have the modern fires of Vesuvius. Rocca Monfina is classed as the most ancient, and is a most striking mountain in its appearance.

After a rather steep ascent of about 2000 feet, we find ourselves all at once within a very regular crater, the brim of which is perfect on the west, where it forms the lofty and precipitous Monte Cortinella, and may be traced in other parts throughout its entire circumference, except on the side which we enter on coming from Sessa, where it is so far broken away, that there is scarcely any sensible descent before arriving within its precincts. The circular form and extent of the crater are, however, better observed from some point near to its centre than from its margin, and a remarkable conical protuberance, which rises up from the midst of the crater, and reaches an elevation of 3200 feet, considerably exceeding the highest point which the margin of the latter attains, gives us an excellent opportunity of surveying its internal dimensions.—P. 177.

Mount Vultur comes next in order. This mountain stands about half-way between Naples and the Adriatic, and would appear, from its situation, to have had some connection with the volcanic system now in activity; for if a line marking the direction of volcanic forces were drawn from the island of Ischia through Vesuvius, and were continued to the east, it would skirt the lake of Amsanctus and extend to Mount Vultur.

In the province of Basilicata, a part of Apulia, and on the eastern flank of the Apennine chain, rises near the city of Melfi a lofty isolated hill, the Mount Vultur, which Horace has celebrated as the scene of his early poetical adventures.

This mountain, both from its conical form and the nature of the rocks composing it, is at once recognized as volcanic. Its remoteness from the ordinary routes of travellers, and the insecurity of the roads in that part of Italy, have caused it to be very little explored; but since the publication of the former edition of this work, it has been visited by myself, and at a still later period by Abich.

I found the mountain composed principally of volcanic tuff, some beds of which were very compact, whilst others were loose and friable, consisting chiefly of pumice like those about Pompeii. On its northern flank, about half-way from the summit, is a great circular expansion, surrounded by an amphitheatre of rocks on all sides except the lower, by which we had ascended, some of which rise more than a thousand feet above the average margin of the cavity. It evidently was once the crater of the volcano, and contained within it two minor depressions, in both which were lakes communicating by a narrow outlet one with the other, and discharging their superfluous waters by means of a little rivulet which runs from the lower and more southern of the two lakes.—Pp. 185, 186.

The distance at which this mountain stands from the sea requires the same explanation we have alluded to in the case of Hungary, to prepare the way for the chemical theory of volcanoes.

It has been conjectured that the eruptions of this mountain took place at a time when the physical structure of the country was different from what it is at present, and the low land between Melfi and the Adriatic constituted a sort of gulf, extending from Taranto upwards, the waters of which washed the foot of this volcano.

Not having seen the work referred to, I am unable to state in what degree this hypothesis is borne out by fact, and shall only remark that it seems favored by the direction of the Apennines as laid down in common maps, where they are represented as dividing about Melfi into two branches, one of which takes the direction of Bari to the east, the other that of Calabria to the south, thus inclosing the greater part of the province of Basilicata in a kind of basin. What this intermediate tract of country may consist of, I have not been able to ascertain; but should it be such as to confirm such a conjecture as to an extension of the gulf at one period in the direction contended for, we may derive from the present extinct condition of Mount Vultur an additional proof of the theory which I shall propose in another part of this work, with respect to the necessity of the access of the sea, or at least of large bodies of water, to feed the fires of every volcano. At present the distance of Mount Vultur from the Adriatic cannot be less than thirty-five miles, whilst from Naples it is nearly twice as remote.—Pp. 188, 189.

The crater of Astroni, on the north side of the bay of Naples, is a curious relic of an ancient volcano:—

Another remarkable crater is that of Astroni, the perfect condition of which has caused it to be selected by the King of Naples as a preserve for his wild boars and other animals destined for the chase; it is a circular cavity, nearly a mile in diameter, the walls of which are formed of a congeries of scoriæ, pumice, and other ejected materials, in regular strata, dipping away in all directions from the centre, which, as at Rocca Monfina, is occupied by a boss of trachyte protruding above the level of the cavity to the height of 200 feet.—P. 201.

Between Astroni and the city of Naples is Solfatara, which still shows languid indications of activity, in the discharge of gases mixed with aqueous vapor. It is time, however, now, that we come to Vesuvius itself:—

The date of that part of the mountain properly called Vesuvius, or rather of its cone, does not perhaps go further back than the period of the famous eruption of 79 after the Christian æra, in which Herculaneum and Pompeii were destroyed; for the ancient writers never speak of the mountain as consisting of two peaks, which they probably would have done, if the Monte Somma had stood, as at

present, distinct from the cone of Vesuvius. It is also remarked that the distance mentioned in ancient writers as intervening between the foot of Vesuvius and the towns of Pompeii and Stabiæ, appears to have been greater than exists at present, unless we measure it from the foot of Monte Somma, so that this affords an additional probability that the latter mountain was then viewed as a part of the former, and that no separation between them had at that time occurred. We may also be sure, from the semi-circular figure which the southern escarpment of the Monte Somma presents towards Vesuvius, that it constituted a portion of the walls of the original crater, and Visconti, it is said, has proved by actual admeasurements that the centre of the circle, of which it is a segment, coincides as nearly as possible with that of the present cone.

There seems, therefore, little room to doubt that the old mouth of the volcano occupied the spot now known by the name of the Atrio del Cavallo, but that it was greatly more extensive than this hollow, as it comprehended likewise the space now covered by the cone, which was thrown up afterwards in consequence of the renewal of the volcanic action that had been suspended during so many ages.—P. 215.

During the long period of rest which this mountain enjoyed, it is described by Plutarch as covered with wild vines, and forming the scene of military enterprises, in which the soldiers made ladders of the vine branches, to let themselves down the precipices. The following extract, however, shows a different state of things:—

This period of apparent security was, however, at length to cease; in the year 63 after Christ the volcano gave the first symptom of internal agitation, in an earthquake which occasioned considerable damage to many of the cities in its vicinity, a curious proof of which is exhibited by the excavations made at Pompeii, showing that the inhabitants were in the very act of rebuilding the houses overturned by the preceding catastrophe, when their city was finally overwhelmed in the manner I am about to describe.

On the 24th of August of the year 79, the tremendous eruption took place, which has been so well described in the letters of the younger Pliny. It was preceded by an earthquake, which had continued for several days, but, being slight, had been disregarded by the inhabitants, who were not unaccustomed to such phenomena. However, on the night preceding the eruption, the agitation of the earth was so tremendous as to threaten everything with destruction.

At length, about one in the afternoon, there was seen, in the direction of Vesuvius, a dense cloud, which, after rising from the mountain to a certain distance in one narrow vertical trunk, spread itself out laterally in a conical form, in such a manner that its upper part might be compared to the branches, and its lower to the trunk, of the fir which forms so common a feature in the Italian landscape. It was descried from Misenum, where the elder Pliny, as commander of the Roman fleet, happened to be stationed with his family, among whom was his nephew, the author of the letters referred to. The latter, who seemed already to have imbibed somewhat of the spirit of the Stoical philosophy, which inculcated rather an indifference to the course of external events than an inquiry into their nature, pursued his usual train of studies as before; but the former, with the zeal and enterprise of a modern naturalist, prepared, in defiance of danger, to obtain a nearer view of the phenomena, as well as to render assistance to the sufferers.

Accordingly he first repaired to Resina, a village immediately at the foot of Vesuvius, but was soon driven back by the increasing shower of ashes, and compelled to put in at Stabiæ, where he proposed to pass the night. Even here the accumulation of volcanic matter round the house he occupied rendered it necessary for him to remain in the open air, where it would appear that he was suddenly overpowered by some noxious effluvia; for it is said, that whilst sitting on the seashore under the protection of an awning, flames, preceded by a sulphureous smell, scattered his attendants, and forced him to rise supported by two slaves, but that he quickly fell down, choked, which proved the more fatal from the shortness of breathing under which he labored. The absence of any external injury proves that his death was caused by some subtle effluvia, rather than by the stones that were falling at the time; and it is well known that gaseous exhalations, alike destructive to animal and vegetable life, are frequent concomitants of volcanic eruptions.

The other circumstances of this memorable event are sketched by the younger Pliny with a rapid but masterly hand. The dense cloud which hovered round the mountain, pierced occasionally by flashes of fire more considerable than those of lightning, and overspreading the whole neighborhood of Naples with darkness more profound than that of the deepest night; the volumes of ashes which encumbered the earth, even at a distance so great as that of Misenum; the constant heaving of the ground, and the recession of the sea, form together a picture, which might prepare us for some tremendous catastrophe in the immediate neighborhood of the volcano—and that this catastrophe did occur, modern investigations have fully demonstrated.—Pp. 218–220.

Many eruptions have taken place since, though sometimes at long intervals.

Accordingly, in the interval between the eruptions of 1500 and 1631 the mountain put on the appearance of an extinct volcano, the interior of the crater, according to Braccini, being in 1611 covered with shrubs and rich herbage, the plain called the Atrio di Cavallo overgrown with timber and sheltering wild animals, whilst in another part there were three pools, two of hot, and one of cold water, and two of these impregnated with bitter salts.—P. 225.

Of late years this volcano has been very active, and an observatory has been erected on its side for the purpose of keeping an account of its movements. Dr. Daubeny has examined the whole construction of the mountain, and we are indebted to him for a most valuable description of the material of which it is composed; but we cannot afford more space for extracts on this locality, as other parts of the world must have their share. As contrasted with the violent, but irregular explosions of Vesuvius, there is a quiet, but mysterious grandeur, in the signal-like warnings of Stromboli, one of the Lipari group of islands. The account of it is from our author's own inspection:—

For my own part, it was with considerable difficulty that I reached the summit of the mountain, which rises at an angle often of nearly 40°, and is covered completely with volcanic sand, consisting of titaniferous iron, amongst which I found numerous crystals of augite, and masses of black pumice, or of a highly scoriform and fibrous description of lava which seems to approach nearly to that mineral.

On looking down from that elevation upon the volcano, it appeared to me that its minor explosions were in general almost continuous, but that the greater ones, which alone were audible below, take place at intervals of about seven minutes. The latter were sufficiently terrific to give me an idea of what takes place during an eruption of Etna or Vesuvius, but as the wind did not blow the stones in our direction, we should have incurred no considerable risk in approaching it nearer. On expressing, however, this wish to my guides, I was reminded, by their refusing to accompany me, of the remark which Spallanzani makes in respect to the superstitious horror entertained in his time by the Liparotes of the crater of Volcano, which obliged him to procure a Calabrian for his attendant; and finding that no one would venture to accompany me nearer, I thought it prudent to abandon the attempt.

The most remarkable circumstance connected with the operations of this volcano is their regularity and uninterrupted character. I have already remarked that there is a continual recurrence of explosions, to which may be added, that from the smaller and lower of the three apertures within the crater, a small stream of lava, like a perennial fountain, is constantly issuing. It flows down the mountain in the direction of the sea, which, however, it never appears to reach, becoming solid before it arrives at that point. Some portions, however, of the congealed mass are continually detached, and roll down into the water.

No cessation, indeed, has ever been noticed in the operations of this volcano, which is described by writers antecedent to the Christian era in terms which would be well adapted to its present appearances.

The unintermitting character of the eruptions at Stromboli appears to arise, as Mr. Scrope has suggested, from the exact proportion maintained between the expansive and repressive force. The expansive arises from the generation of a certain amount of aqueous vapor and of elastic fluids, the repressive from the pressure of the atmosphere and from the weight of the superincumbent volcanic products. In most volcanoes the gradual accumulation of scoriæ and fragments of rock around the orifice increases the repressive force, until it controls for a time the expansive energy; but at Stromboli no such accumulation takes place, because the greater part of the ejected matters finds its way into the sea, where it is probably washed away by some submarine current.—Pp. 246—248.

But Mount Etna is the giant of volcanoes; Pindar calls it the Pillar of Heaven. Its general appearance is thus given:—

Nothing of this kind is indicated by the structure of Etna. This mighty and imposing mountain, which, according to the accurate measurements of Captain Smyth, and Sir John Herschel, rises in solitary grandeur to a height not far short of 11,000 feet, embraces a circumference of eighty-seven miles, and is divided into three distinct regions, representing three climates, as opposite as those of the torrid, the temperate, and the frigid zones.

The lower of these regions, called the fertile, or cultivated, extends from the base of the mountain to the height, perhaps, of 2500 feet, and is covered with orchards, vineyards, and corn-fields, of the most productive character.

The second, called the woody, constitutes a girdle of forest trees, investing the flanks of the volcano to a height of 6279 feet, where it is succeeded by a rugged and naked region extending to the summit, which goes by the name of the desert or barren, distinguished by a circle of snow, from the centre of which the great crater rears its majestic head.

The whole of this immense formation seems to be composed entirely either of lavas, or of ejected masses, for the most part of igneous origin, which, whatever subordinate differences may exist between them, all possess the appearance of having been thrown out above the surface of water, and not under pressure.

In the structure of this mountain, everything wears alike the character of vastness. The products of the eruptions of Vesuvius may be said almost to sink into insignificance, when compared with its *coulées*, some of which are four or five miles in breadth, fifteen in length, and from 50 to 100 feet in thickness, and the changes made on the coast by them are so considerable, that the natural boundaries between the sea and land would seem, as it were, to be determined by the movements of the volcano.

The height, too, of Etna is so great, that the lava frequently finds less resistance in piercing the flanks of the mountain than in rising to its summit, and has in this manner formed a number of parasitical cones, many of which possess their respective craters, and have given rise to considerable streams of melted matter. Hence an ancient poet has very happily termed this volcano the Parent of Sicilian Mountains, an expression strictly applicable to the relation it bears to the hills in its immediate neighborhood, all of which have been formed by successive ejections of matter from its interior.

The grandest and most original feature, indeed, in the physiognomy of Etna, is the zone of subordinate volcanic hills with which it is encompassed, and which look like a court of subaltern princes waiting upon their sovereign. Of these, nearly eighty are enumerated; fifty-two on the west and north, twenty-seven on the east side of Etna: some covered with vegetation, others bare and arid, their relative antiquity being probably denoted by the progress vegetation has made upon their surface, in which respect the extraordinary difference that exists would be sufficient by itself to indicate that the mountain to which they owe their origin must have been in a state of activity at a distance of time exceedingly remote.—Pp. 271, 272.

We cannot pretend to analyze the elaborate description and history of this mountain, which the professor lays before us, though it is most valuable and interesting. One extract must suffice under this head:—

The last eruption of any moment which has taken place at Mount Etna was the one of December, 1842, which produced a stream of lava taking the direction of Bronte and Randazzo, and producing great devastations. A curious circumstance

is recorded of it, which has given rise to much discussion. The lava-stream was watched by a large number of persons proceeding steadily onwards, in the direction of a small lake or pond of water. When it approached its borders, the first impulse of the assembled multitude was to retreat, aware of the consequences which usually attend the contact of molten matter with a body of liquid. To their surprise, however, no explosion took place at the moment the lava reached the pool, upon which a number of the spectators took courage, and went nearer to watch what would happen. After a brief interval, however, the effects which they had shrunk from with so much dread, actually occurred, the lava which had entered the stream being suddenly projected into the air with a terrific noise, and the fragments in their descent proving fatal to a large number of those who had been rash enough to come near.

M. Boutigny, whose ingenious experiments on the repulsion between bodies intensely heated, and water, are well known, explains the non-occurrence of any explosion at the moment of the lava first entering the water, by its high temperature, which was such as not to cause the generation of steam till it had time to cool down to a certain point, when the usual consequences of the contact of a heated mass with water took place.—P. 287.

We have now finished with Italy and its surrounding islands. What a terrible mine of explosive powers must there be under the lovely shores and clear skies of far-famed Italy! If the Colosseum itself does not stand on the crater of a volcano, yet surely the foundation of the whole country is a fit emblem of the stability of *man's* eternal empire.

Volcanoes, however, are not always simply mischievous. They sometimes act as safety-valves. Lisbon fell for want of a volcano:—

The notoriety which the great earthquake of Lisbon in 1755 has obtained, is calculated to create a general expectation, that many traces of volcanoes would be found in the immediate neighborhood of that city. But it appears, by the most recent and authentic account of the geological structure of that locality which has come to my knowledge, that although an immense sheet of basalt extends from Santa Catherina on the Tagus to Bucellas, a distance of nearly twenty miles, and although many of the hills around Oeiras, near the mouth of the Tagus, are capped by masses of the same rock, still, that the whole of it was thrown up before the deposition of the oldest of the tertiary formations, and consequently, as indeed its own texture would indicate, is submarine.

The liability to earthquakes therefore, to which Lisbon appears subject, *would seem to arise from the want of a volcanic vent*, and the frequency of thermal waters throughout many parts of Portugal would favor the idea, that volcanic action may be going on in many parts of this country, in a more subdued manner.—Pp. 298, 299.

Great Britain and Ireland are summarily passed over with the following remarks:—

It is not my purpose, however, to treat of the geological structure of any portion either of Great Britain or of Ireland, first, because the details are already before the world in treatises readily accessible to the English public, and secondly, because the volcanic products seem in these regions mostly submarine, and are apparently in no cases of more modern date than the age of the chalk.

In accordance, indeed, with this great antiquity, and with the almost total cessation of volcanic action in the country subsequently, (unless, indeed, the slight earthquake-shocks perceived at Cumrie be allowed to establish the contrary,) we observe throughout these districts an entire absence of thermal springs, as well as of those other minor exhibitions of igneous action, which occur in most other localities, where equally wide-spreading manifestations of the same forces have taken place.

It is true that many of the basalts which I have noticed as occurring in Germany were similarly circumstanced, if we may judge by their characters and structure; but then they are associated with other igneous products more nearly approaching in these respects to those produced under actual circumstances, and it would have been difficult to have described the latter, without introducing some notice of the first.

In Ireland, on the other hand, as well as in the Hebrides, we have an example of volcanoes, which, during the whole of the extended period of time embraced within the tertiary epoch, no less than within the compass of historical times, have given no token of vitality—a circumstance, as it appears to me, more reconcilable with that theory which attributes volcanic action to certain chemical processes taking place within the interior of the earth, than to the idea of its arising merely from the contraction of the crust upon its fluid contents, which latter being inexhaustible, ought, it should seem, according to this hypothesis, to be protruded periodically, and to afford a fountain of igneous matter as unfailing as the source from which it proceeded.—Pp. 301, 302.

The researches of the late Professor Edward Forbes have rendered it probable that there was a time when Ireland, the Faroe Islands, Iceland, and even the Azores, were connected together by continuous tracts of land: however this may be, Iceland may be considered the throne of northern fire.

I shall proceed, then, to Iceland, where volcanic operations have been carried on on a more gigantic scale, perhaps, than in any other part of Europe; for although there be no one mountain in this island which rivals Mount Etna in magnitude and height, yet evidences of igneous action pervade a much larger area than in Sicily, and have generated in the course of time a much greater amount of volcanic products.

Indeed, whilst the utmost length of Sicily is about 100 miles from Messina to Cape Passero, and its breadth 150 from Messina to Trapani, Iceland measures at least 240 miles from its most northern to its most southern point, and as much from east to west; and whilst of the former island not a tenth of the surface is volcanic, the whole of the latter is derived from igneous operations either of an early or of a recent date.

According to Krug von Nidda, one of the latest geological travellers who have visited this island, the whole surface, embracing an area of 1800 square miles, presents only two principal rock-formations, one seeming to occupy the bottom of that northern ocean out of which the islands of Iceland and Faroe have risen, and consisting of trap rocks of the ordinary kind; whilst the other, which forms

the nucleus of the former island, and may be regarded as the principal cause of its existence as an upraised tract of land, is trachyte, with its accompaniments of tuffs and lava currents. If, as Krug von Nidda thinks, there are any Neptunian beds in the island, they are at least so metamorphosed by the action of heat as to put on the characters of an indurated tuff or obsidian. The trachyte traverses the island in a broad band from S. W. to N. E., and has produced in the line of its elevation an immense fissure, along the sides of which the accompanying traps are seen to be upheaved.—Pp. 302, 303.

Asia Minor presents bold scenery to those who search for extinct volcanic action:—

Rocks of volcanic materials, chiefly tufaceous, extend all the way from Hassan-Dagh to the isolated peak of Mount Argæus, the loftiest mountain of the Taurus range, which, according to Mr. Hamilton's measurements, cannot be less than 13,000 feet above the sea. This also consists of volcanic rocks, its summit being composed of a reddish brecciated and scoriaceous conglomerate, full of fragments of trap and porphyritic trachyte, and constituting nearly the point of junction between two enormous broken craters, one of which opens to the N. E., the other to the N. W., and the steep sides of which to the north are covered with perpetual snow, for 2000 or 3000 feet below the summit.

As of Mount Etna, numerous cones of pumice and lapilli encircle its base, and traces of streams of black basaltic lava were visible near the foot of the mountain.

Yet, gigantic as the scale is in which volcanic agency must have operated at this locality, as well as in the mountain just before mentioned, a still more surprising feature is the occurrence of horizontal tertiary and volcanic rocks over the whole intermediate space, at the height of 4000 feet and upwards, above the sea.

"What a mighty effort of elevation," says Mr. Hamilton, "must we not suppose to have been capable of raising a tract of land, above 200 miles in length, to this great height, without anywhere destroying the horizontality of the stratification!" —Pp. 346, 347.

In the Holy Land there are tokens of volcanic action within the limits of authentic history; and that such was the case is rendered probable by the frequent reference to phenomena of this kind in the prophetic writings, as when Nahum says, "The mountains quake at him, and the hills melt, and the earth is burned at his presence. * * * His fury is poured out like fire, and the rocks are thrown down by him."

The destruction of Sodom and Gomorrah and the Dead Sea have given rise to some discussion among geologists. That it was strictly volcanic can hardly be doubted, as the whole valley of the Jordan appears to have been intersected with volcanic products. The slime-pits mentioned in Genesis, which may also be translated *fountains* of bitumen, would show that the valley of Siddim was a volcanic district. Taking, therefore, for granted that the destruction of the cities was the immediate effect of volcanic action, we may account for the existence of the Dead Sea by supposing that the valley of the Jordan was at the same time stopped up, and its waters thereby accumulated till they formed a lake of sufficient extent to exhaust its fresh supplies by the natural process of evaporation; and it also seems probable that the whole valley was sunk beneath its former level; and the basin thus formed received the river, which it afterwards tainted with its bituminous qualities. The latter supposition Dr. Daubeny is inclined to, after a comparison of the elevations of adjoining seas with the river Jordan.

Mount Sinai would appear to be volcanic.

At Sherm, in the peninsula of Mount Sinai, the hills for a distance of two miles presented, says Burckhardt, perpendicular cliffs, formed in half-circles, none more than sixty or eighty feet in height, whilst in other places there was the appearance of volcanic craters. The rock of which these mountains are composed is black, with a slight tinge of red, full of cavities, and with a rough surface; fragments that have been detached from them were seen lying on the road. The cliffs were covered by deep layers of sand which also overspread the valleys.

Burckhardt thinks it probable that other rocks of the same kind may be found near Ras Abou Mohammed, and that the name of Black Mountains, (*μελανα ορη,*) applied to them by the Greeks, may have arisen from this cause. It should be observed, however, that low sand-hills intervene between the volcanic rocks and the sea, and that above them, towards the higher mountains, no traces of the lava are found, which circumstance seems to prove that the volcanic matter is confined to this spot. Burckhardt adds, in a letter to the Association, that the Arabs, as well as the priests of the convent, mention that loud explosions are sometimes heard, accompanied with smoke, proceeding from a mountain called Om Shomnar, eight hours SS. W. of Djebel Moussa, where, however, he searched in vain for any traces of the kind.—Pp. 363, 364.

Those who have seen English soldiers stationed in sentry-boxes on the tops of the rugged peaks of Aden, to guard the great coal-hole of our Indian steamers, may be curious to know the origin of so dismal a place.

The promontory of Aden, eighty miles westward of the straits of Babel-mandel, consists of a bold cluster of volcanic rocks, with lofty jagged peaks, and is connected with the mainland by a low isthmus. At the extremity of the promontory next the main-land is an immense, nearly circular crater, in the centre of which, upon a flat, little raised above the sea-level, stands the town of Aden. The diameter of the crater is about one and a half miles, and it is surrounded on all sides, except the eastern, with precipices chiefly composed of lava, rising from 1000 to 1776 feet in height. The crater has been rent in two places on the north and south, but is elsewhere entire.—P. 365.

The chain of the Caucasus has been explored by M. Dubois de Montpereux with the greatest energy and perseverance. The result of his enterprise is to mark out the history of this district, as follows:—

It appears then, that at a period, geologically speaking, not very remote, the whole region com-

prehended between the Euxine and the Caspian was covered with water, which, as many are led to believe, formed a vast Mediterranean Sea, extending through Central Asia, of which the Lake of Aral, the Caspian, and other large expanses of water now existing, are the remnants.

The first movement by which any part of the Caucasian range was elevated took place at the period of the formation of the Jurassic limestone or oolitic series, and caused an island to be thrown up between the two seas. Subsequently to this event, a deposition took place of schistous and arenaceous beds, which, from such fossils as Gryphites, Hamites, Amonites, and others, which they contain, seem capable of being identified with the cretaceous and greensand formations.

A great eruption of melaphyre, or trap porphyry, then took place, through the instrumentality of which, the chain of Akhaltsikhe, consisting of the above-named secondary deposits, was heaved up above the level of the waters. At this period, then, there would seem to have existed a great tract of water north of the Caucasian range, covering the space now occupied by those vast steppes that intervene between the two seas, in the 45th parallel from the Sea of Azof to Astrachan.

South of this sea was the chain of mountains which had been uplifted at the epoch of the chalk formation; then occurred a straight or narrow sea, bounded on the north by this chain, and on the south by the Caucasian island consisting of Jura limestone, the result of a previous upheaval.

Now it was at this epoch that the volcanic eruptions began, by which the face of the country has been since so much modified.—Pp. 367, 368.

To this period are attributed various rocks of basalt, trachyte and other volcanic products; and also the grand volcanic amphitheatre of Central Armenia, in which is Mount Ararat, 16,254 feet high. The history then proceeds:—

All this succession of geological epochs appears to have preceded the great elevatory movement to which the Caucasian chain owes its existence. It was then for the first time that Elbrous, Passenta, Kasbek, and the Red Mountains, reared their heads above the surrounding country.

The first of these, Elbrous, the most northern of the four, and the one nearest to the Euxine, is a vast crater at once of eruption and of elevation. Trachytic porphyries have here been pushed through schistose and perhaps granitic rocks; and the secondary beds adjacent, consisting either of Jura limestone or of chalk, are more and more inclined in proportion as they approach the central mass.

Passemta has not been yet explored, but its height is calculated at not short of 14,000 feet.

Kasbek, which stands considerably to the east of Elbrous, was also evidently another focus of volcanic operations. Streams of lava proceeding from it have been traced as far as the village of Kasbek situated at its base.

The Red Mountains lie above the village of Kachaor, on the road from Tiflis to Wladikavkas. Here there is a vast mural precipice, consisting of black slaty rocks, nine or ten thousand feet in height, on the summit of which two or three cones of volcanic materials, called from their color the Red Mountains, are placed. Streams of lava which have proceeded from it fill up a large fissure or valley to a considerable height.

North of Elbrous lies the vast steppe abovementioned, which is a tertiary formation in perfectly horizontal strata, deposited from the sea that once covered the whole of the country between the Euxine and Caspian. It is dotted over with detached hills, one of which, Bachetau, 4500 feet above the sea, is composed of trachytic porphyry. This volcano, however, would seem to have been in repose since the tertiary period, as its flanks are covered with undisturbed beds belonging to that class of rocks, but surrounded by a sort of amphitheatre of hills, which consist of cretaceous beds. One of these hills is called Machouka.—Pp. 369, 370.

We trust, however, that M. Dubois' observations are more accurate that his speculations, judging from the following extract:—

M. Dubois indulges in some bold speculations, with respect to the consequences that may have resulted from the bursting of some one of those great lakes, which we have seen to lie at so great an elevation above the sea, in the midst of the great mountainous tract of the Caucasus.

Some such event as this he conceives competent for the production of an aqueous inundation, sufficiently wide-spreading to have swept off the face of the earth all the inhabitants of the plain of Mesopotamia, the cradle of the human race, and thus to have brough forth such a deluge as the one which the Scriptures record, supposing that catastrophe to have been no more than coëxtensive with the limits within which mankind was at the time circumscribed.—P. 373.

With regard to Central Asia our information is but obscure:—

Cordier observes, "that the existence of two burning mountains in the midst of the immense table-land bounded by the Ural, the Altai mountains, the frontiers of China, and the Himalaya chain, is a fact well worthy of attention. Sal ammoniac is never found in Europe in any but a volcanic rock; it is therefore probable, *à priori*, that the origin of it in Asia is that assigned by the Abbé Remusat, and the professed learning of that scholar gives an authority to the facts detailed."—P. 387.

Dr. Daubeny, however, does not consider there is sufficient evidence to prove the existence of these volcanoes, and they would rather militate against his theory of the sea being necessary for their operations. He prefers accounting for the presence of sal ammoniac by attributing it to the combustion of coal, as is the case in some parts of Germany.

We now turn to the Indian Archipelago, which presents some remarkable phenomena. A line of volcanic action can be traced more than 3,000 miles long, and somewhat semi-circular in its form, within which, and consequently free from its influence, are the islands of Celebes and Borneo, and the Malayan promontory. It commences with the Philippine Islands, passes between Celebes and New Guinea, then turns to the west, takes in Java and Sumatra, and ends on the coast of Pegu. At the most southern part of this line is the island of Sambawa, where there is perhaps the

most terrific volcano on the face of the earth. Sir Stamford Raffles has thus described one of its eruptions :—

Almost every one, says this writer, is acquainted with the intermitting convulsions of Etna and Vesuvius, as they appear in the descriptions of the poet and the authentic accounts of the naturalist, but the most extraordinary of them can bear no comparison, in point of duration and force with that of Mount Tomboro, in the island of Sumbaya. This eruption extended perceptible evidences of its existence over the whole of the Molucca Islands, over Java, a considerable portion of Celebes, Sumatra, and Borneo, to a circumference of a thousand statute miles from its centre, by tremulous motions and the report of explosions; while within the range of its more immediate activity, embracing a space of 300 miles around it, it produced the most astonishing effects, and excited the most alarming apprehensions. In Java, at the distance of 300 miles, it seemed to be awfully present. The sky was overcast at midday with clouds of ashes; the sun was enveloped in an atmosphere, whose "palpable density" he was unable to penetrate; a shower of ashes covered the houses, the streets, and the fields, to the depth of several inches, and amid this darkness explosions were heard at intervals, like the report of artillery, or the noise of distant thunder.

At Sumbaya itself three distinct columns of flame appeared to burst forth, near the top of the Tomboro mountain, (all of them apparently within the verge of the crater,) and after ascending apparently to a very great height, their tops united in the air in a troubled, confused manner. In a short time the whole mountain next Sang'ir, appeared like a body of liquid fire, extending itself in every direction.

The fire and columns of flame continued to rage with unabated fury, until the darkness, caused by the quantity of falling matter, obscured it at about eight, P. M. Stones at this time fell very thick at Sang'ir, some of them as large as two fists, but generally not larger than walnuts. Between nine and ten, P. M., ashes began to fall, and soon after a violent whirlwind ensued, which blew down nearly every house in the village of Sang'ir, carrying the alaps or roofs, and light parts away with it. In the port of Sang'ir, adjoining Sumbaya, its effects were much more violent, tearing up by the roots the largest trees, and carrying them into the air, together with men, horses, cattle, and whatever else came within its influence. [This will account for the immense number of floating trees seen at sea.] The sea rose twelve feet higher than it had ever been known to do before, and completely spoiled the only small spots of rice land in Sang'ir, sweeping away houses and everything within its reach. The whirlwind lasted about an hour. No explosions were heard till the whirlwind had ceased, at about eleven, A. M. From midnight till the evening of the 11th, they continued without intermission; after that time their violence moderated, and they were heard only at intervals, but the explosions did not cease entirely till the 15th of July. Of all the villages round Tomboro, Tempo, containing forty inhabitants, is the only one remaining. In Pekaté no vestige of a house is left; twenty-six of the people, who were at Sumbaya at the time, are the whole of the population who have escaped. From the best inquiries there were certainly not fewer than 12,000 individuals in Tomboro and Pekaté at the time of the eruption, of whom five or six survive. The trees and herbage of every description, along the whole of the north and west of the peninsula, have been completely destroyed, with the exception of a high point of land near the spot where the village of Tomboro stood. At Sang'ir, it is added, the famine occasioned by this event was so extreme, that one of the rajah's own daughters died of starvation.—Pp. 402—404.

In the island of Java the following extraordinary and awful event is recorded :—

The Papandayang, situated on the south-western part of the island, was formerly one of its largest volcanoes, but the greater part of the mountain was swallowed up into the earth in the year 1772, after a short but violent paroxysm. The account which has been transmitted of this event asserts, that near midnight, between the 11th and 12th of August, there was observed about the mountain an uncommonly luminous cloud, by which it appeared to be completely enveloped. The inhabitants, as well about the foot as on the declivities of the mountain, alarmed by the appearance, betook themselves to flight; but before they could all save themselves, the whole mass began to give way, and the greatest part of it actually *fell* in and disappeared in the earth. At the same time a tremendous noise was heard, resembling the discharge of the heaviest cannon. Immense quantities of volcanic substances, which were thrown out at the same time, and spread in every direction, propagated the effects of the explosion through the space of many miles.

It is estimated that an extent of ground, belonging to the mountain itself and its immediate environs, fifteen miles long and six broad, was by this commotion swallowed up in the bowels of the earth. Several persons, sent to examine the condition of the neighborhood, made report, that they found it impossible to approach the spot, on account of the heat of the substances which encircled it, and which were piled on each other to the height of three feet, although this was on the 24th of September, and thus full six weeks after the catastrophe. It is also mentioned that forty villages, partly swallowed up by the ground, and partly covered by the substances thrown out, were destroyed on this occasion, and that 2,957 of the inhabitants perished.—Pp. 406, 407.

The same island also affords two other extraordinary effects of volcanic action. One is the vomiting of mud.

About the centre of this limestone district is found an extraordinary volcanic phenomenon. On approaching the spot from a distance, it is first discovered by a large volume of smoke rising and disappearing at intervals of a few seconds, resembling the vapors arising from a violent surf, whilst a dull noise is heard like that of distant thunder. Having advanced so near that the vision was no longer impeded by the smoke, a large hemispherical mass was observed, consisting of black earth mixed with water, about sixteen feet in diameter, rising to the height of twenty or thirty feet in a perfectly regular manner, and, as it were, pushed up by a force beneath, which suddenly exploded with a dull noise, and scattered about a volume of black mud in every direction. After an interval of two or three, or sometimes four or five, seconds, the hemispherical body of mud or earth rose and exploded again.—P. 409.

The other in the Valley of Death, or Poison Valley.

Amongst the remarkable phenomena connected with volcanic agency which Java affords, is that same abundant evolution of carbonic acid, which has been already described as occurring in the Lago di Ansanto, near Naples. A similar valley in Java has been called the Valley of Death, or Poison Valley, (*Guevo Upas*,) and by combining the accounts given of it with those respecting the malignant qualities of a particular vegetable production of the island, called the Upas tree, (*Antiaris Toxicaria*,) that monstrous fable has been concocted, to which Darwin has given currency in those well-known lines of his "Botanic Garden," beginning,

> Fierce in dread silence on the blasted heath
> Fell Upas sits, the hydra-tree of death.

Every living thing that enters this fatal valley is arrested there by instant death, and as the same fate awaits any one that may go to the rescue, the ground is covered with the bleached bones of numerous animals, as well as of men, who have from time to time approached the precincts. Here the bones remain, whilst the soft parts have wasted away, as carbonic acid exerts little action upon the earthly constituents; but in another locality, at Talaga-Bodas, a volcano mentioned by Boon Mesch, on the authority of Reinwardt, where the mephitic vapors are apparently accompanied by sulphuric acid, the bony matter of the animals suffocated by the mephitic exhalations is eaten away, whilst the muscles, nails, hair, and skin, remain. The fact at least is vouched for by the Dutch naturalist; the explanation I offer as my own.—Pp. 410, 411.

In the Pacific Ocean nature may appear at first sight under a milder sway, and may seem to be secure from the effects of internal fire. Those islands scattered over its waters, which rest on their foundation of coral, are often the most perfect pictures of safe retirement and happy repose which the world can afford. The Atolls, or lagoon islands, are circles of land, more or less broken, enclosing a portion of the sea, kept in perpetual quiet by the wall around it. There are often islands within this calm retreat, which, consequently, have never felt the roughness of the waves, though in the midst of the greatest ocean of the world. When this last is the case, they are called barrier reefs, as distinguished from lagoon islands.

Quiet, however, as these islands may appear, they owe their very existence to volcanic forces. There are different theories of accounting for the forms in which the coral insects have built these monuments of indefatigable industry, but all agree in supposing that there have been changes in the bottom of the ocean produced by volcanic action. Mr. Darwin's theory of subsidence is considered the most probable.

He supposes that, at some antecedent period, a large tract of that which now constitutes a part of the Pacific Ocean was dry land; but that it has for many centuries past been slowly subsiding, until at length the upper surface of the rock sunk beneath the level of the waters.

Whenever this event occurred, the coral animals would commence their labors, and would go on building up to the point at which they were no longer covered by the waves and spray.

If, therefore, this subsidence be supposed to have continued, a provision would exist for the continuation also of this building process, for the land sinking still further, the corals might go on adding to the bulk of the reef, without ever attaining the level of the water; and in this manner, during a vast succession of ages, a thickness of coralline matter would be produced, equivalent to the amount of depression which the rock upon which it reposed had in the mean time undergone.

The more vigorous growth of the corals on the outer margin, from having space to expand, and from being freely exposed to the open sea, will account for the annular form which the reef usually assumes, with a hollow within filled with sea-water; and this not only where there is a central island, as in the case of a barrier reef, but also where there is none, as in that of the Atoll or lagoon island.

The absence of this internal hollow between the land and the growing mass of coral serves to show, that in the third kind, the fringing reef, there has been no subsidence; for, had there been any, the progressive rise of the coral on the margin, in a greater ratio than that within, would have by degrees produced a corresponding hollow.—P. 419.

More direct volcanic action is not wanting in the Pacific, but the situation of it would rather confirm than interfere with the theory of subsidence.

From this statement it appears that volcanic action is still rife in various parts of the Pacific Ocean, included within north latitude 15° and 30°, and in south latitude below the parallel of 16°; but that there is an intermediate tract, on either side of the equator, over which a number of low coral islands are scattered, entirely exempt from all indications of the kind, at least until we approach the shores of the American continent, where the Galapagos group make their appearance. These latter, however, as well as the islands of Revillagigedo and Juan Fernandez, are so remote, that they will be considered as belonging to another system, and hence we can more easily admit the view for which Mr. Darwin contends that the tract alluded to is the seat of a vast subsidence, the rate of which may be supposed to keep pace in the main with the rate of growth which the coraline formations are experiencing.

This tract is in general avoided by navigators, from the dangers arising from the numerous coral reefs which exist under water, as well as forming islands above it. From these rocks the latitudes to the north and south are in great measure exempt, showing that the formation of coral is in a degree coincident with the area of subsidence.—Pp. 427, 428.

The lowest point ever reached by man in the southern hemisphere presents a most wonderful example of volcanic fire. Sir James Ross in 1841 discovered a vast continent, now called Victoria Land, in about the same longitude as New Zealand, and 77½° south latitude.

Here two volcanoes are observed, the one extinct, called Mount Terror, the other in a state of great activity, called Mount Erebus.

The latter was estimated at no less than 12,600 feet above the level of the sea, and makes part of a

stupendous chain of mountains, belonging to a new continent of vast but undefined extent, the whole mass of which, from its highest point to the ocean's edge, is covered with everlasting snow and ice.

This icy barrier, running east and west on this parallel, forbids any further progress towards the pole, or any nearer examination of the igneous phenomena there displayed.—Pp. 431, 432.

A beautiful description of this scene is given by Dr. John Hooker, in a letter published in the Journal of Botany, and which forms a note in our present work.

The water and the sky were both as blue, or rather more intensely blue, than I have ever seen them in the tropics, and all the coast was one mass of dazzlingly beautiful peaks of snow, which, when the sun approached the horizon, reflected the most brilliant tints of golden yellow and scarlet; and then to see the dark cloud of smoke, tinged with flame, rising from the volcano in a perfect unbroken column, one side jet black, the other giving back the colors of the sun, sometimes turning off at a right angle by some current of wind, and stretching many miles to leeward! This was a sight so surpassing everything that can be imagined, and so heightened by the consciousness that we had penetrated, under the guidance of our commander, into regions far beyond what was ever deemed practicable, that it caused a feeling of awe to steal over us, at the consideration of our own comparative insignificance and helplessness, and at the same time an indescribable feeling of the greatness of the Creator in the works of his hand.—P. 432.

We have no space for the description of many other volcanic districts scattered over the world. We, therefore, altogether omit the islands of the Atlantic and the continent of Africa, which contain some few examples, without, however, any particular interest. America has a great line of volcanoes, more or less developed, in the vast chain of mountains that, under different names, runs from north to south of both continents; otherwise there are not many examples, for great flatness is the prevailing characteristic of the rest of America.

We cannot, however, omit the description of Mount Jorullo.

The volcano of Jorullo, situated between Colima and the town of Mexico, is of much more modern date than the rest, and the great catastrophe which attended its first appearance is, perhaps, (says Humboldt,) one of the most extraordinary physical revolutions in the annals of the history of our planet.

In the month of June, 1759, a subterraneous noise was heard. Hollow sounds of the most alarming nature were heard, accompanied by frequent earthquakes, which succeeded each other for from fifty to sixty days, to the great consternation of the inhabitants of the farm. From the beginning of September everything seemed to announce the complete reëstablishment of tranquillity, when in the night of the 28th and 29th the horrible subterraneous noise recommenced. The affrighted Indians fled to the mountains of Aguasarco. *A tract of ground from three to four square miles in extent rose up in the shape of a bladder.* The bounds of this convulsion are still distinguishable from the fractured strata.

Those who witnessed this great catastrophe from the top of Aguasarco assert, that the flames were seen to issue forth for an extent of more than half a square league, that fragments of burning rocks were thrown to prodigious heights, and that through a thick cloud of ashes, illumined by volcanic fire, the softened surface of the earth was seen to swell up like an agitated sea. The rivers of Cuitimba and San Pedro precipitated themselves into the burning chasms. The decomposition of the water contributed to invigorate the flames, which were distinguishable at the city of Pascuaro, though situated on a very extensive table-land 4592 feet above the plains of Las Playas de Jorullo. Eruptions of mud, and especially of strata of clay, enveloping balls of decomposed basalt in concentrical layers, appear to indicate that subterraneous water had no small share in producing this extraordinary revolution. Thousands of small cones, from six to ten feet in height, called by the natives *ovens*, (Hornitos,) issued forth from the Malpays. Although, according to the testimony of the Indians, the heat of these volcanic ovens has suffered a great diminution during the last fifteen years, I have seen the thermometer rise to 212° on being plunged into fissures which exhale an aqueous vapor. Each small cone is a *fumarole*, from which a thick vapor ascends to the height of from twenty-two to thirty-two feet. In many of them a subterraneous noise is heard, which appears to announce the proximity of a fluid in ebullition.

In the midst of the ovens six large masses, elevated from 300 to 1600 feet each above the old level of the plains, sprung up from a chasm, of which the direction is from NN.E. to SS.W. This is the phenomenon of the Monte Nuovo of Naples, several times repeated in a range of volcanic hills. The most elevated of these enormous masses, which remind us of the Puys in Auvergne, is the great volcano of Jorullo. It is continually burning, and has thrown up from its north side an immense quantity of scorified and basaltic lavas, containing fragments of primitive rocks. These great eruptions of the central volcano continued till the month of February, 1760. In the following years they became gradually less frequent.

The Indians, frightened at the horrible noises of the new volcano, abandoned at first all the villages situated within seven or eight leagues distance of the *Playas de Jorullo*. They became gradually, however, accustomed to this terrific spectacle; and having returned to their cottages, they advanced towards the mountains of Aguasarco and Santa Ines, to admire the streams of fire discharged from an infinity of small volcanic apertures of various sizes. The roofs of the houses at Queretaro, at a distance of more than forty-eight leagues in a straight line from the scene of the explosion, were at that time covered with ashes.—Pp. 476—480.

We now conclude this part of our subject with the following general notice of the volcanoes of South America:—

The volcanoes we are now about to consider are distinguished from those that most commonly meet the eye in Europe, not only by their gigantic proportions, but also by their general conformation and their mineralogical characters.

We have, indeed, described, as existing in Mexico and Guatemala, volcanoes nearly rivalling them

in point of elevation, and equally distinguished by their pyramidal forms, as well as by being made up of one uniform description of rock, and not of alternating beds of lava and scoriæ; but these characters are to be met with occasionally amongst the volcanoes of the old world also, and are not stated to be accompanied, in the case of the Mexican volcanoes, with any peculiar mineralogical composition.

In the Andes, on the other hand, we observe a long range of conical mountains, forming some of the highest eminences on the face of the globe, often destitute of craters, rarely pouring forth any streams of lava, but emitting from their summits only steam and aeriform fluids, whilst the material of which they are composed is that peculiar description of felspathic rock, which Henry Rose has distinguished, from the circumstance of its occurring in South America, by the name of *andisite*.

No wonder that Humboldt, the great and principal explorer of these extensive regions, should have felt himself privileged to protest against theories founded only upon an observation of the puny volcanoes of Italy, and with a pardonable feeling of exultation at the wider field of induction which his own superior opportunities of foreign travel had afforded him, should have compared the geologist who imagined all the eruptive rocks throughout the globe to be moulded according to the model of those he was familiar with in Europe, to the shepherd in Virgil, who supposed, in the simplicity of his heart, his own little hamlet to contain within itself the image of imperial Rome.—Pp. 485, 486.

We leave now the region of phenomena immediately arising from volcanoes, and proceed to the consideration of others supposed to be connected with them, such as earthquakes and thermal springs.

That earthquakes are but volcanoes without any vent, there can hardly be a doubt. In dealing, therefore, with the theory of volcanic action, we need scarcely make any distinction between these two exhibitions of the same internal force. We must, however, lay before our readers a few extracts descriptive of the effects of these fearful convulsions of nature. As the accidental bursting of a powder magazine is more dreadful than the firing of the heaviest artillery, inasmuch as the one spreads all round, and the other but in one direction, so have earthquakes ever inspired more terror, and been more destructive of human life than volcanoes. The nature of the earthquake shock is that of waves propagated from a central cause. These are of different kinds.

In Southern Italy, where this is too often the case, the movements of the earth referred to earthquakes, having been carefully observed, are divided into three kinds.

1st. The undulatory motion, which takes the place horizontally and heaves the ground successively upwards and downwards, proceeding onwards in a uniform direction.

2d. The successive motion, in which the ground is heaved up in a direction more or less approaching to the perpendicular, as happens in the explosion of a mine.

3d. The vorticose motion, which seems to be a combination of the two preceding ones, several undulations taking place contemporaneously, and thus interfering one with the other, so that during its continuance the surface of the land is tossed about somewhat in the same manner as that of the sea is during the prevalence of a storm, when a number of billows travelling in different directions strike one against the other, and thus produce every possible complexity of movement.—Pp. 508, 509.

Earthquakes of the two latter kinds are the most destructive.

Now this second kind of movement has been noticed with greater or less distinctness by many of those who have observed and reported to us the frightful earthquakes which, on the 1st of November, 1755, brought about the destruction of Lisbon. Of the not less terrific, though less widely diffused earthquake, which in February and March, 1783, laid waste Calabria and Messina, we have also obtained authentic accounts. Dolomieu, who made observations on it at the very time and place where it occurred, states distinctly, that the movements of the principal shock on the 5th of February were always of a wave-like character, and could be compared to nothing better than to the effect produced, when we place small quantities of moist and slightly moistened sand near each other on a plate which we toss vertically upwards, moving it horizontally at the same time backwards and forwards.

On the 28th of March of that year, a fine example of a movement of succession was perceived; for, according to Hamilton's account, the summits of the granitic hills in Calabria were clearly seen to rise and fall alternately, and individuals, and even houses standing by themselves, are said to have been suddenly borne aloft, and then, without any damage being done to them, brought back to a somewhat higher spot than before.—Pp. 509, 510.

Again:—

The most frightful, however, of these catastrophes was the earthquake which, in June, 1692, ravaged the whole of Jamaica. At Port Royal the entire surface of the ground seemed at the time like a rolling, swelling sea; houses were shifted from their places; men who, at the commencement of the phenomena, had escaped into the streets and open spaces of the town, were thrown down, tossed to and fro, and often bruised and stunned in the most frightful manner; others again thrown aloft and borne to a great distance; so that some, by good fortune, were carried out into the harbor, and, falling into the water, escaped with their lives.—P. 511.

The following notice of the earthquake of Lisbon seems to prove that its cause was very deep-seated.

This earthquake affords the best example on record of the extent of ground over which some of these great natural convulsions diffuse themselves. It has been computed, that the above-named shock pervaded an area of 700,000 geographical miles, or the twelfth part of the circumference of the globe, comprising all the Spanish peninsula—being felt at Cadiz, Gibraltar, Malaga, Madrid—and extending to the Pyrenees and to Provence. Shocks sufficient to damage houses were experienced at the same time in many parts of the Alps; slighter ones at Geneva and Neufchatel; but at Como, Turin, and Milan, taking place with considerable force. Vesuvius, which had shown signs of commotion pre-

viously, became tranquil on the day of the earthquake.

North of the Alps it was noticed at Augsburg; the hot springs of Töplitz were disturbed at the same time, though the neighboring ones of Carlsbad continued unaffected; nay, even in Norway and Sweden the lakes were observed to be in a state of commotion.

At Gluckstadt, on the borders of the Elbe, the sea rose and sunk in a remarkable manner; in Cornwall the waters rose as much as eight or ten feet, and swept away several small vessels; whilst on many parts of the coast the same phenomenon was observed, and even in Scotland the waters of Loch Lomond, Loch Ness, Loch Katrine, &c., rose above their banks. On the opposite side, many places in Morocco, such as Tetuan, Tangiers, Fez, &c., were overturned, and shocks were experienced in the Canary Islands and the Azores.

But what was more remarkable, the West Indian Islands sympathized in the movement, and the sea surrounding them assumed a black tint, perhaps from bitumen, whilst at the same time Boston, New York, and Philadelphia were sensibly affected.—Pp. 514, 515.

Yet this earthquake came without a moment's notice, lasted but five minutes, and the first shock, which was the worst, but five or six seconds. Dreadful, however, was the damage done in this short time; 30,000 were killed in the churches alone; for it happened on the Feast of All-Saints, at the hour of service. The progress of an earthquake has been accurately marked out by Mr. Mallet.

Without following Mr. Mallet in his detailed explanation of the various accidents of earthquakes, arising from *interferences* in several waves, and from other causes of the same kind, I will just recapitulate the order of the successive phenomena which present themselves, according to this writer, in the case of an earthquake affecting a maritime tract.

First, we have the earth-sound wave, and the great earth-wave or shock; the sound-wave through the air; the sea-wave occurring at the time, which he calls the forced sea-wave; and the great sea-wave; all originating at the same moment, and produced by one impulse.

The sound-wave through the earth, and the great earth-wave or shock arrive first, and are heard and felt on land, accompanied, as far as the beach, by the small sea-wave called the forced sea-wave; these are almost instantly succeeded by the sound-wave through the sea; next arrive the aërial waves of sound, and continue to be heard for a longer or shorter time, and finally the great sea-wave rolls in upon the shore.

Such is the sequence of phenomena when the earthquake takes place under the bed of the ocean; when it occurs on land, the great sea-wave is necessarily wanting, although disturbances may occur in consequence of the falling of masses of rock into the water, which may be mistaken for it.—Pp. 524, 525.

The shock of an earthquake varies according to the substance through which it is transmitted. Some strata carry it much further than others; and hence it will be felt along a particular line of country, where the stratum is more elastic, when it is not at all perceived at places much nearer its centre.

Of thermal springs we can only remark, that they are looked upon as slight symptoms of volcanic action, chiefly on account of the vapors that accompany them, and the chemical ingredients of the water itself. They are, moreover, generally found in situations favorable to this idea, where other signs of volcanic action, either extinct or present, are also to be found. This need not cause alarm to the frequenters of watering-places at this season of the year, for the difference between a bubbling fountain and a volcano or earthquake is about as great as between a fire in its proper place and a fire enveloping one's house in destruction. The difference in degree is as important in many things, and may be confided in as much, as the difference in kind.

The extracts we have chosen have not been those most calculated to form the basis of an elaborate discussion on the various volcanic theories which are before the world; nor have they been ones particularly connected with Dr. Daubeny's own theory on the subject. The simple reason for this has been, that we have felt it more consistent with our present purpose to avoid as much as possible the details of chemical science, and the hard phraseology by which it expresses its meaning, and in which, consequently, the workings of the chemical theory must be described. We must now, however, come to the theory, with reference to which the book is written. The general statement of the theories by means of which volcanic operations have been accounted for is thus laid down:—

The theories which have been propounded with the view of accounting for the existence of volcanic action may be divided into two classes; those which assume some chemical process, of which the heat is merely an effect; and those which, assuming the existence of the heat, deduce the other phenomena from its presence.

In the former, in short, which I shall henceforth designate as the chemical class of theories, the heat is one of the *consequences;* whilst in the second, which may be called the mechanical, it is assumed as the *prime mover* of all the phenomena observed.—P. 594.

Dr. Daubeny's chemical theory, we believe, he has most satisfactorily proved to be the immediate cause of all the phenomena before us; but we must be allowed to make one observation on the division just quoted. It may be an intrusion concerned with the language, more than with the substantial idea conveyed in it; as Dr. Daubeny only means absolutely to exclude fire as the immediate cause; but we had rather have had it so worded as to leave it open even among holders of the chemical theory, to consider fire, in some ultimate way, the great mover in the production of these phenomena. The division just quoted, states that heat is the *consequence* only in the chemical theory, the *prime mover* in the mechanical. If this is a fair way of stating the different theories, those who believe in

the chemical theory are excluded from the idea of original heat being the first cause; and those who hold the mechanical theory, or, as it is defined, start with the belief that heat is the *prime mover*, are likewise excluded from looking on the chemical process as the immediate cause of the phenomena we see. Dr. Daubeny himself allows that there may be internal heat in the globe; yet he says, it has nothing to do with volcanic action. Be the earth hot or cold, he believes his theory to maintain the same position. He is not sure but that the earth has been from creation perfectly cold, except when warmed by chemical combinations. The oblate figure of the globe, which is generally supposed to have arisen from the centrifugal force of diurnal motion when the earth was in a more fluid state, he explains on other grounds. The passage, however, which meets this difficulty had better speak for itself.

The other class of theories, which begins by assuming the high temperature, and then deduces from it the other phenomena, seems at first sight to have an advantage over the preceding one, inasmuch as the existence of internal heat may be thought to be in a manner ascertained, whilst that of the alkaline or earthly metalloids, uncombined with oxygen, is at most only probable; and accordingly many have been induced to prefer this mode of accounting for the phenomena, as less hypothetical, and requiring fewer postulates.

They forget, however, that the existence of an internal heat is assumed alike on either supposition, and that the true point of dispute is, whether it can best be explained by the presence of a melted or ignited mass in the interior of the globe, or by a process of oxygenation going on amongst its constituents.

It is, indeed, a common fallacy to set down *internal* and *central* heat as identical, although a moment's consideration will convince us that the one is a matter of observation, the other purely of inference, and that the only decisive mode of establishing the latter proposition would be by demonstrating that the nucleus of the globe either is, or at least once was, in a state of fluidity.

Now the only direct argument in favor of the internal fluidity of the globe is deduced from its figure, which has been proved to be that of an oblate spheroid; a form, it is contended, which could not have been imparted to it unless it had been originally liquid, and from whence the advocates of the above hypothesis conceive themselves at liberty to infer that it is in this state at present.

Neither of these propositions, however, can be regarded as demonstrated. Sir J. F. Herschel has shown, in his "Treatise on Astronomy," that the oblate figure of the globe may only have arisen from its long-continued rotation, this being the point to which, under this condition, it must tend, and which it would ultimately attain, even as its surface is at present constituted.

Professor Playfair, in his "Illustrations of the Huttonian Theory," (p. 435,) has also contended, that if the surface of the earth has been repeatedly changed from sea to land, the figure of the planet must in that case have been at length brought to coincide with its actual one.—Pp. 598, 599.

The mechanical theory, as Dr. Daubeny understands it, is certainly most unsatisfactory. It is simply, that the earth was originally in a molten state; that, as it gradually cooled, the surface became hard, and a crust was thus formed; that this crust contracted, thereby pressing on the internal fluid, and causing it to ooze out at whatever vents it could find, or could make for itself. Every volcano would thus be supposed to have uninterrupted communication with the molten mass that constituted the interior of the globe. The acknowledgment that earthquakes and thermal springs have any connection with volcanoes, is expressing a disbelief in the mechanical theory as thus stated; for no one can suppose that every slight tremor of the earth, or every warm fountain, springs direct from a bottomless mass of burning liquid.

The chemical theory, on the other hand, supposes that volcanic action is the result of a process of internal oxidation, which goes on when the oxygen contained in air or water finds its way from the surface to the unoxidized material of the earth. Without entering into the details of chemistry, this principle is obvious enough; and we can readily attribute all volcanic action to some kind of chemical combustion, as its immediate cause.

Such being the outline of these two theories, the products of volcanic action, we think, prove the latter, from their similarity to known chemical results; yet we differ from Dr. Daubeny in this, that whereas he makes the chemical theory independent of original heat, we see no reason why original heat may not be the *prime mover* of chemical action itself; such action being only the intermediate process between central fire and volcanic action. Dr. Daubeny only *concedes* that the chemical theory is consistent with the belief in a central fire—he denies that it is dependent on it; yet, curious enough, he has no full explanation of his own theory contained in his work, but one which starts, as it were by this concession, from a point in the history of the globe, which the holders of the mechanical theory have made out for him. He offers, in fact, no complete theory from the first, yet builds on the theory of others, and then denies its necessity. We will quote, however, what may be termed his apology for having no theory:—

> I place but little confidence in those systems of cosmogony which profess to explain the various changes which our planet has undergone, from the first moment at which its materials were launched into space, down to the present advanced stage of its existence.
>
> Such pictures of nature have to me rather the aspect of a philosophical romance, than of a series of sober deductions from ascertained facts; and, if advanced with any higher pretensions than as one of many possible modes in which certain natural forces may have operated, lay the theorist open to the charge of presumption, and shake the confidence of his readers in his authority on other points—P. 646.

He then proceeds to state that he does not *shrink* from the test of a theory; and in proof of it he adapts his chemical theory to the early part

in the history of the mechanical one. This is most ably done, and we think forms one consistent theory, which the professor impairs by the implication, in other parts, that the chemical action described has no necessary connection with the idea of central heat.

This adaptation of one theory to another, which strikes us as being the best explanation of the whole subject, as long as we really look on it as one consecutive idea, is contained in the following extract; which, as being the end and object of the whole work, must necessarily be rather long:

Let us, then, take up the subject at the point which cosmogonists of the opposite school are agreed in picturing to us as the primordial condition of our planet—that in which its constituents, from the high temperature they possessed, were in a nebular condition, prevented only by the never-failing force of gravity from being dissipated through space.

Under such circumstances, all the elements of matter would remain in a state of chemical indifference, and the law of gaseous diffusion would occasion their intimate intermixture without any union resulting.

Let us next suppose a diminution of temperature in the course of ages to arise, which should bring down the volatilizable of these bodies to a state at least of liquidity; and there may then be conceived a certain segregation of the elements, such as should cause the heaviest of them to accumulate in a greater degree in proximity to the centre of the mass.

Thus, iron and some of the more ponderous metals might constitute the larger proportion of the internal parts of the earth, the metals of lime and magnesia might occupy a somewhat higher zone, whilst those of the alkalies arranged themselves above; the whole, of course, enveloped in an atmosphere consisting not only of its present constituents, but also of hydrogen and chlorine, incapable as yet, from the still exalted temperature belonging to them, of entering into combination with the bodies for which they have an affinity.

But let us imagine a further reduction of temperature sufficient to allow these elements to exert their affinities, and it is evident that by the union of hydrogen both with oxygen and with chlorine, a sea would at length be created, strongly impregnated with muriatic acid.

Now this water acting upon the metallic constituents of the superficial coats of the earth, would generate the alkalies and earths, as well as give rise to combinations between the same bases and the chlorine present in the muriatic acid which it held in solution.

Hydrogen would of course be disengaged by both these processes, but no ultimate diminution in the amount of the sea need result, because whatever hydrogen was at first liberated would speedily recombine with oxygen. Thus we should have a zone of salt water interposed between the atmosphere and the solid matter of the globe, whilst the latter would consist of a crust of alkaline and earthy materials enveloping an unoxided nucleus. If we suppose this crust to contain an excess of silica beyond what could combine with the alumina and alkalies present, a material like granite might result from the intermixture of felspar and mica with quartz or uncombined silica.

I have now brought the earth down to that condition in which cosmogonists of a different school suppose it to have subsisted, when, through contractions in its cooling crust, inequalities of surface would begin to take place, and the "*waters be divided from the waters*," by the formation of hollows or depressions, into which the seas might subside. This would take place equally according to the view I have formed of the subject, and would give rise to similar consequences.

Thus the contraction would tend to produce cracks, through which the sea-water might find its way down to the internal portions of the globe; chemical actions would thus be renewed, and fresh volumes both of steam and of hydrogen disengaged. The latter, however, would no longer be able to find a ready vent upwards, and in consequence would rend and fracture the crust in various directions; or, when in the neighborhood of rocks soft ened, though not melted, by the internal heat, would swell them out, and form vast hollows or caverns which they would at first distend. The pressure outwards would prevent any more water from finding its way into the interior, and thus for the time put a stop to the action; but no sooner did the heat diminish, than the gases contained in the caverns must contract in volume and become condensed, thus creating a partial vacuum, which would be supplied by water when the communication was with the sea, and by atmospheric air when it was in connection with the land.

No supposition would seem more natural, though some have made it a ground of objection, than this occurrence of a pressure outwards alternating with one in the contrary direction, according as gaseous matter was generated by the volcanic processes, or condensed by the cooling of the cavities that contained it.

I may fortify these conclusions by the authority of Sir Humphry Davy, who, in a memoir "on the Phenomena of Volcanoes," published in the Philosophical Transactions for 1828, remarks, that there is every reason to suppose in Vesuvius the existence of a descending current of air; that the subterranean thunder heard at such distances underneath the mountain is almost a demonstration of the existence of cavities below, filled with aeriform matter; and that the same excavations, which in the active state of the volcano throw out during so great a length of time immense volumes of steam, must, there is every reason to believe, in its quiet state become filled with atmospheric air.

Hence perhaps we may explain a phenomenon that has been noticed during the continuance of an eruption, namely, that of the air being heard to rush through the various spiracles of the mountain with a loud, and, as it is represented, an almost musical sound.

In this manner, then, a communication would be kept up between the interior of the earth and the atmosphere, and both air and water would gradually find their way to greater and greater depths, in proportion as the crust continued more and more to contract.

At length access would be obtained to that lower zone in which the heavier elements, such as calcium, magnesium, iron, manganese, remained unoxidized, and new products would consequently be formed, which becoming melted along with the more superficial granite, would give rise to combinations of silex with lime, magnesia, and the other oxides, and in consequence to the substitution of labradorite for orthoclase, and of augite for quartz. Hence volcanic products, such as greenstones, basalts, or trachytes, would take the place of those granitic ones,

which had been the first results of the action of oxygen upon the solid constituents of the globe.—Pp. 647—649.

Exercising common sense, and bringing analogy to bear, may not an ordinary reader be allowed to associate these two theories together, so that his faith in the one depends on his faith in the other? Every discovery in science seems to point to a time when this earth was fluid from its excessive heat; and to come to any other conclusion involves the philosopher in unintelligible explanations. Internal heat, therefore, being supposed, are we to imagine that the whole surface of the earth has been convulsed by heat, that external heat not being connected with the internal? Is this the philosophy which analogy teaches us—to forget the fountain-head of power, in the more immediate presence of its agent? We may talk of chemical combustions, but do they represent final causes? There must be latent dormant fire within the material of the globe, in order to burst out on accidental contact; and nothing seems more likely to have left this dormant property, which we call chemical action, in the hidden substance of the earth's crust, than the retreating heat, at depths inaccessible to the process of cooling, with which we are chiefly acquainted.

Taking central heat as the prime mover, it is impossible to suppose, as we have already said, that it is the immediate agent in the present state of the world; for these volcanic phenomena must surely be on a much larger scale than we experience. A crack in the surface of the earth might then bury whole countries in the molten mass; indeed, we cannot imagine such a cause producing such comparatively slight results as we see at present. But the strata of the earth, as exposed by geologists, would seem to imply that such was at one time exercised. Here there is an additional argument for the crust having been first but very thin, and having from the process of cooling become afterwards much thicker. The lower we go in the geological strata, and, consequently, the further back we go in the history of the earth, the more violent are the convulsions, and the more frequent are the ebullitions of internal fluid which hardened down into trap rocks. May we not, then, imagine a time when the purely mechanical theory was in action; that is, when the crust of the earth was so thin that it did give way from contraction? and may we not trace a *gradual* change from this time to the more indirect exercise of central heat in the dormant fire of chemical action?

Holding, then, the chemical theory, we yet consider it an important point not to give up the central heat of the earth as the *prime mover*. This enlarges the whole subject, makes it more intelligible, and opens out to us the consideration of other intermediate agents, which may have their origin in fire, and may also be connected with chemical action. A theory of volcanoes is surely imperfect in these days, without leaving some room for the supposition that electricity and galvanism are agents in it. If we know a mysterious power to exist in the many different shapes which electricity assumes—from the northern lights, the thunder of the clouds, to the never-ending still small voice of the magnetic needle, which is probably in some way connected with galvanic influence—is it not natural to prefer a theory of volcanic action which admits of this being considered? Chemical action is believed by many to be connected with galvanism; but, however this may be, is it not probable that all these powers have their origin in fire? The only notice of electricity taken by Dr. Daubeny is the following, and we cannot think he gives this mighty influence its due position, or that he sufficiently appreciates the value of analogy:—

> The arguments that have been from time to time adduced in favor of the electrical theory are vague and inconclusive; they are drawn from some fanciful analogy between the noise and shock accompanying lightning, and those which are experienced during an earthquake; from the extreme rapidity with which that motion is propagated; from the electrical state of the air both before and after an earthquake; and from the sulphureous smell sometimes perceived, which is thought to resemble that produced by the electrical shock.
>
> Electrical phenomena, indeed, are common during the continuance of volcanic eruptions, produced in all probability by the evolution of large quantities of steam and other elastic fluids, the decomposition and subsequent regeneration of water, and other processes that accompany these grand operations of nature.—Pp. 533, 534.

May not fire, then, be the prime mover of all these forces? And chemical action, electricity, galvanism, and many other active powers, the numerous offspring of their common parent, fire, which might thus be looked on as the vital principle of matter—the very soul of this earth? "As for the earth," Job says, "out of it cometh bread, and under it is turned up as it were fire." There is a vestige of a true idea in the worship of fire. It seems to have been our origin, for every rock of the earth bears its stamp, and we are told it will be the end of time, and the preparation for eternity. Everything excellent in the spiritual world, every high gift of intellectual energy, and every strong power of the natural world, is associated, more or less distinctly, with the idea of fire. A thousand instances will at once occur, which it would be rash, or even presumptuous, to write down, but which point out, to our secret conviction, that among the mighty instruments of Providence, fire, in its direct or indirect signification, occupies no small, and no confined position. Is it not almost a forewarning, that as the latter days would seem to be putting forward some of their appointed signs, the study of that earth in which we live, and which is to be passed through the fire, should first have risen up into a science? The discoveries of geology, if some have accused them of want of consistency with the scriptural account of the beginning of the world, can claim a most solemn uniformity of de-

tail with the glimpses which are given us of its end. We find traces of former periods that are most exact types of what we believe will be hereafter. Compare, for instance, the convulsions of the more early geological periods with Isaiah's announcement of the end of the world.* "The foundations of the earth do shake. The earth is utterly broken down, the earth is clean dissolved, the earth is moved exceedingly. The earth shall reel to and fro like a drunkard, and shall be removed like a cottage."

We will not, however, dwell longer on what are but suggestive ideas, but now conclude with expressing a hope that the study of science will be more generally seen to bear on the development of sacred truth, than has hitherto been the case. The church has lost much influence in its day, by too obstinate a refusal to admit the conclusions of scientific pursuits. Everything which springs as fruit from the working of the human mind merits an examination, which should purge it of its corruptions, and should add its truth to the many human instruments of good which can be made serviceable for the cause of heaven. English philosophers have set the example of a better spirit than those of other nations; for it cannot be denied that scientific speculations have often led to almost unmixed evil. Let our church, then, exhibit a willingness to accept truth, however brought before it, and to make those discoveries, which are of so much service to the worldly condition of man, give back their share as offerings, of the best gifts which we possess, on the altar of man's eternal interest.

MANUAL DEXTERITY IN MANUFACTURES.

THE "body" of a hat (beaver) is generally made of one part of "red" wool, three parts Saxony, and eight parts rabbit's fur. The mixing or working up of these materials is an operation which depends very much upon the dexterity of the workman, and years of long practice are required to render a man proficient. The wool and fur are laid on a bench, first separately, and then together. The workman takes a machine somewhat like a small violin bow; this is suspended from the ceiling by the middle, a few inches above the bench. The workman, by means of small pieces of wood, causes the end of his "bow" to vibrate quickly against the particles of wool and fur. This operation, continued for some time, effectually opens the clotted masses and lays open the fibres—these flying upwards, by the action of the string, are by the manual and wonderful dexterity of the workman caught in their descent, in a peculiar manner, and laid in a soft layer of equable thickness. This operation, apparently so simple and easily effected, is in reality very difficult, and only to be learned by constant practice.

In type-founding, when the melted metal has been poured into the mould, the workman, by a peculiar turn of his hand, or rather jerk, causes the metal to be shaken into all the minute interstices of the mould.

In manufacturing imitative pearls, the glass bead forming the pearl has two holes in its exterior; the liquid made from a pearl-like powder is inserted into the hollow of the bead, by a tube, and by a peculiar twist of the hand the single drop introduced is caused to spread itself over the whole surface of the interior, without superfluity or deficiency being occasioned.

In waxing the corks of blacking bottles much cleverness is displayed. The wax is melted in an open dish, and without brush, ladle, or any other appliance, the workman waxes each cork neatly and expeditiously, simply by turning the bottle upside down and dipping the cork in the melted wax. Practice has enabled the men to do this so neatly that scarcely any wax is allowed to touch the bottle. Again, to turn the bottle to its proper position, without spilling any of the wax, is apparently an exceedingly simple matter; but it is only by a peculiar movement of the wrist and hand, impossible to describe and difficult to imitate, that it is properly effected. One man can seal one hundred in an hour.

In pasting and affixing the labels on the blacking bottles much dexterity is also displayed. As one man can paste as many labels as two men can affix, groups of three are employed in this department. In pasting, the dexterity is shown by the final touch of the brush, which jerks the label off the heap, and which is caught in the left hand of the workman and thrown aside. This is done so rapidly that the three-fold operation of pasting, jerking, and laying aside is repeated no less than two thousand times an hour. The affixing of the label is a very neat and dexterous operation. To the watchful spectator the bottle is scarcely taken up in his hand ere it is set down labelled. In packing the bottles into casks much neatness is displayed.

The heads of certain kinds of pins are formed by a coil or two of fine wire placed at one end. This is cut off from a long coil fixed in a lathe. The workman cuts off one or two turns of the coil, guided entirely by his eye; and such is the manual dexterity displayed in the operation, that a workman will cut off 20,000 to 30,000 heads without making a mistake as to the number of turns in each. An expert workman can fasten on from 10,000 to 15,000 of these heads in a day.

The pointing of pins and needles is done solely by the hand. The workman holds thirty or forty pin lengths in his hand, spread open like a fan; and wonderful dexterity is shown in bringing each part to the stone, and presenting every point of its circumference to its grinding action. In finally papering needles for sale, the females can count and paper 3,000 in an hour.

* Isaiah xxiv. 19, 20.

From Chambers' Journal.

THE WAXEN HEAD.

One evening, as I entered the little *salon*, I found M. Dubarle engaged in carefully dusting a glass-case, which covered a curious-looking composition head. There was a mystery connected with this work of art, which he had appointed this particular evening to elucidate. Seating himself in his gossip-chair, he forthwith plunged, nothing loth, into his—in this, as in most other instances—somewhat episodical story. We English, let me premise, who used to boast—at least some of us did, till we got ashamed of it—that one Englishman was a match for three of any other nation, ought to regard with much indulgence the egotistical absurdities of the *vieille moustache*. The French are not the only nation whose self-esteem has been at times stimulated into peacock extravagance, for certain ends well understood by war governments of all countries. But I am detaining the lieutenant from his story.

"That head, my young friend," he began, "was an improvisation of genius, which France, a country where, as all the world knows, *coups d'éclair*—lightning strokes—flash across the brains of thousands every day in the week, could rarely surpass. The spectacles—you observe the green spectacles—were an absolute inspiration, similar to that of the emperor at Ratisbon, when"——

* * * * *

"Before all those glorious events occurred, I was married to Madamoiselle Coralie Dupont, an artist in wax, settled in the *Rue des Capiennes*, Paris. The mode of our introduction to each other was so unpleasantly singular, so strangely *bizarre*, that I may as well relate it to you.

"There was a grand wedding at the church of St. Rocq—about the last *grande noce* celebrated there till the brilliant days of the empire shone upon France—and I was among the crowd pressing forward to obtain a peep at the great people. Little Jules, my nephew, now a lieutenant in the 9th *dragons*—you saw him here the other day—but then a mischievous little *gamin* of four or five years of age, sidled up, and begged piteously that I would carry him into the church when the doors opened. I was ass enough to comply, and hoisted the young *coquin* astride my shoulders. The doors were an instant afterwards thrown back, and in we all pressed *pêle-mêle*. The crowd was the densest I ever beheld. We were packed, wedged together, without the possibility of turning or moving. My arms were pinioned to my side, which being perceived by amiable Master Jules, he forthwith began to use my shoulders as a new and delightful sort of rocking-horse, bumping up and down with a short, quick motion, and freely using my hair as a bridle. I strove to liberate one of my arms to reach the young villain, but it was impossible. He spurred away too charmingly, now with his heels in my ribs, and now with his toes in the back of the neck of a lady immediately before us. This brought on a new infliction; the lady, justly indignant that such liberties should be taken with her, and unable to turn round to ascertain the cause, retorted in the only way she could, by kicking out viciously behind; and if ever a pair of vigorous heels played a devil's tattoo upon a poor fellow's shins, hers did on mine. *Tonnerre!* but it was dreadful! Vainly did I in frantic whispers adjure her, by all the saints in heaven, to forbear. It was useless. Human nature could not have borne it much longer, when fortunately the priests entered, and the ceremony began. Jules had some religion, if he had no mercy, and forbore his exercise. The lady, finding the assault had ceased, also graciously, after one vigorous parting salute, suspended hostilities. At length all was over, and out we struggled. The lady, Mademoiselle Coralie Dupont, on being apprized of the cause of the assault upon her, and perceiving the effect of her cruel retaliation, melted with compassion, and insisted upon my accompanying her to her *établissement*, where she dressed my wounds with her own fair hands. Our friendship, commenced in this odd manner, thrived so rapidly, that a month afterwards I was her adored, adoring husband, and the master of a comfortable *ménage*, about a hundred wax figures, the best exhibited then in Paris, a good sum of money in hand, and as pretty an equipment of *argenterie* as any *bourgeois* could desire. *Parbleu!* it was a happy life I led then; but my paradise was at last invaded by one of the foulest serpents that ever crawled the earth.

"One of the rooms—*au troisième*—of the house in which we lived was occupied by a sinister-looking scoundrel, a sort of clerk, who had managed in those topsy-turvy days to wriggle himself into an influential office—and a lucrative one of course, connected with the revolutionary tribunal. I had long felt, for various reasons, a dread of this Monsieur Tricard. Coralie had also her apprehensions, and frequently cast about in her powerful mind for the means of defeating him, should things come to the worst. To the worst they soon *did* come with a vengeance. My wife and I were sitting together after dinner sipping a glass or two of *muscadin*, and chuckling over the rumors, then rapidly acquiring strength, of the approaching downfall of Robespierre, Couthon, and the other *scélérats*, when in stalked an officer with an order for my immediate arrest. I resigned myself, after the first shock, to what was inevitable, and was leaving the apartment, when Coralie, matchless, divine Coralie! who was weeping as if her tender heart would burst, cried out, 'Your *spectacles, cher* Auguste; do not go out into the cold air without your spectacles, you that have such weak eyes.' What could she mean? I had never worn spectacles in my life! I, however, fortunately held my tongue, while Coralie placed them, and tied them behind. The officer laughed hoarsely, and brutally remarking that I should not suffer much from weak eyes by that time on the morrow, bade me follow without delay. I did so. We entered a *fiacre*, and speedily arrived before the infernal

tribunal. In about half an hour *my* turn came. The trial was by no means tedious. I was told that I was accused by Citoyen Tricard of *incivisme*—a charge which ranged from a plot to upset the republic, to the crime of doubting if Maximilian Robespierre was as lovely in person as he was gentle and mild in disposition. I had, it seems, or at least Monsieur Tricard said so, which was all the same, spoken disparagingly of Messieurs the executioners *en chef* of France; and was accordingly condemned to be decapitated on the following day. My goods and chattels were at the same time declared forfeit to the republic; the republic in my case meaning an amiable lodger *au troisième*. I was dragged off to La Force, crammed into a miserable cell, and there left to the undisturbed contemplation of my present situation and future prospects.

"Two hours had lingered wearily away, when the bolts of the dungeon were suddenly drawn, and in stepped, like an angel of hope visiting the regions of despair, my charming Coralie.

"A rapid explanation ensued. M. Tricard had already taken possession; but dreading, as my guardian angel soon perceived, that his master's reign was drawing rapidly to a close, he was anxious to obtain a better title to my effects than a mandate of Robespierre's creatures, and he therefore proposed to marry Coralie. Yes, the *gredin* actually offered marriage to my wife; and she, the siren, affecting dread of falling into poverty, consented, after a sufficient hesitation, to espouse him on the following morning, immediately after my head had fallen! She was now visiting me for the purpose of coaxing me to tell her where I had hidden certain *rouleaux* of gold which M. Tricard happened to know we were possessed of a few days previously. Coralie added that her future husband had fortunately obtained a peremptory order for my execution at dawn of day!

"I comprehended all this very well afterwards; but as Coralie ran it over, weeping, smiling, laughing, all in a breath, I became every instant more and more confounded.

"'Ah *ça*,' I said at last; 'all this seems to amuse you very much; but, *parbleu!* I cannot at all see the jest of it! The *rouleaux* you put away yourself; and as for the *fortunate* circumstance of being *first* served to-morrow morning'——

"'Do you see this head?' interrupted Coralie, showing me the identical one now standing on that table. She had brought it in a basket.

"I started with amazement. It was my *own* head! The long black hair, the prominent nose, were life itself; the eyes were effectually concealed by a pair of green spectacles!

"'This is the head, *cher* Auguste,' continued Coralie, 'which shall fall on the scaffold at to-morrow's dawn. But come, quick, swallow some of this brandy, and then to business.'

"To work she went, and in an incredibly short space of time she had built my shoulders up even with the top of my head. A sort of *surcoat* was then drawn over, and a slit made opposite my mouth to breathe through; the head was then fastened on the summit; and my cloak, a very long one, was securely clasped round the neck.

"'There,' said Coralie, exultingly, 'but for your height, I should be myself deceived. We will remedy that also. Now, lie down on your straw; then draw your legs up as much as you can. Now mind when you are wanted in the morning you will be incapable of standing or rising. They will carry you out; and you must lie down in the cart, and suffer yourself to be carried quietly up the steps of the scaffold, keeping yourself as much in a heap as possible. Tricard will be there to make sure, and so shall I. Thanks to the *rouleaux*, one of the jailers is already our friend. I know where the executioner who officiates to-morrow morning is to be found, and depend upon it that gold, and his knowledge that the days, or rather hours of the '*terreur*' are numbered, will induce him to aid the deception; and very fortunately, as I said, there will be, thanks to my *futur's* impatience, very little light. And now, dear Auguste, *au revoir*, for I have much yet to do.'

"She was gone, leaving me gratified certainly, but by no means comfortable—not in the least, either in mind or body. I was sewed up in a sack, as it were, and, spite of the cold, my head and face were speedily in a profuse perspiration. Then there were so many chances! The executioner might refuse to cheat his beloved guillotine, or he might take the bribe, and still chop off the real head over the bargain! Or the sham one—I could feel it shake and sway too and fro, except when I steadied it with my hand—might slip away before its time! My friend, that was the dismallest night I ever passed. To crown all, I could not, try as I might, use my snuff-box; and the dreadful sensation I endured all night in consequence, none but an inveterate snuff-taker, as I was, and am, can imagine or dream! *Tonnerre!* but I was several times tempted to tear myself out of my enclosure, and have a pinch on two at all risks and hazards!

"Everything happened in the morning as Coralie had foretold. I was dragged out, and I could understand, from the manner in which the gentleman who officiated about my head and shoulders handled me, that *he* at least remained faithful to his hire. The cart rumbled on, and soon arrived at the foot of the scaffold. The comparative silence of the place satisfied me there were but few persons present. This was fortunate. Presently footsteps approached, and I discerned the voice of Coralie coaxing Tricard to withdraw from contemplating his supposed victim. An instant afterwards, a fellow, evidently not in the secret, drew me out by the legs, and threw me over his shoulder, with a jerk so violent, that if I had not fortunately made a successful grasp at the nose at the very moment, it would have sent the head spinning again. Up he ran with me, and deposited me with another functionary. I heard the

scissors clipping away my false locks, and then I fainted. When restored to consciousness, I found myself in a small strange apartment, liberated from the surcoat, with Coralie chafing my temples, I heard that, thanks to the obscurity of the morning, and the address of the executioner, everything passed off remarkably well; and M. Tricard was at that moment impatiently awaiting his bride. Before next day closed, Robespierre and his associates had perished; some by their own hands, and some by the doom they had so often awarded to others. Tricard shared the fate of the master-butchers.

"Coralie and I lived happily together for many months afterwards; but at last the conscription found me, and I followed the consul-emperor in the brilliant career which, but for English gold, and a few French traitors, would have completed the subjugation of Europe, to the eternal glory of France."

Such was the story of Lieutenant Auguste Dubarle; but, to speak frankly, had it not been for the evidence of the waxen head and its green spectacles before my eyes, I could hardly have believed it.

From Chambers' Journal.

SCHOOLBOY DAYS.

The time of childhood, the earliest time one remembers being anything or doing anything at all, is one everybody likes to think of and speak about; and I cannot help believing that the poorest people in the streets can go back to something like fairy days, when everything looked as if it was bathed in a great flood of light, when an hour was the same as a day, and a day like an hour. God pity those, indeed, that never had an infancy, and cannot recollect when they were happy! But after all, for regular thorough-going, careless joy, for a whole host of things that you can gossip about, and adventures that come back on you like stories, for my own part I know nothing like the days when we were at school. The school and the lessons we used to curse in our hearts for a useless bore unaccountably inflicted on us by our fathers—blessings be on them, from the little boys' form and the assistant's desk to the master's—from the primer to "Mair's Introduction" and old Virgil—it was they that made us happy! And I don't care if I run over a few sketches of what befell in my own experience and that of my companions of yore; if it was only to remind others of it, or to make those whose memory is less pleasant partake frankly of mine.

So well I remember the day when our father, who had previously taught us himself, took us with him to be introduced to the school four miles off! We had both green bags on our backs, provided by him with books, and by our mother with eatables, that did not at all interfere with our eating a hearty dinner when we got home at night. All the boys laughed at that and our uncouth rustic cut in general; one after another came up with his slate to get a near look of the strangers. The loud, busy hum of the school was changed to whispering and smirking, and the rows of sly, mischievous faces were turned round from their desks; until the bald-headed master struck the table with his cane, and gave an angry shout, that sounded to us like the thunder of Jove. What a sinking of the heart was that with which we found ourselves first left alone in the midst of its busy, heartless murmur, while the class round the master's chair were droning out their lesson, interrupted now and then by ominous reproofs, thwaks, and whines! We sat thinking, as we had n't done before, of home, the rooms, and the places we played in; father, mother, sister's face, the very servants, and the dog in his kennel, were twice as dear to us since the morning. Then, when we did get out, half an hour before the rest, how we did scamper homeward along the long road in the evening light, enjoying the air and the freedom, till we came, by the dusk, through the thick fir woods, and saw the house over the hill quietly standing amongst its trees, with the church belfry and the smoke of the farm beside them.

There were two ways we could go and come by; one a shorter cut, half a foot-path and half a sheep-track, over the high uplands, through plashy bog to the firm brown moor, where you came all at once on the long blue smoke of Thomas the Rhymer's village, even whilst you were looking at the black and the green hills of Cowdenknowes, the forked peak of Eildon, the nook where Melrose lies, and the solitary tower of Smailholm on a distant rising ground. On that path there was a little clear, cool well under a bank, almost the only place where we could quench our thirst, coming home of a hot summer's afternoon. Over the mossy pasture slopes above it grew the finest mushrooms, more plentifully than I have ever seen that rare fungus since; the sheep lay with their lambs among the gray stones; the shepherd boy stretched on his plaid, with his dog sitting erect beside him, looked to us, as we passed, the very happiest soul alive. Over the ridge of the hill wound an endless fir plantation, where the rabbits went out and in, the blackbirds whistled, the cushat cooed high up in its nest, and the pine-cones were strewed numberless on the withered spikes. Many a time, loitering to school by the edge of it, and through the green larchwood, with our bags on our backs, did we look into it, sorely tempted to remain. And at length, one wet day, the last you would have expected us to choose, we made it up together to play truant; got drenched amongst the long grass half as a pretext, took off our wet clothes, and hung them up inside under the tall dry stems; danced about almost naked, ate our bannocks and boiled eggs, and rubbed sticks one on another in the vain attempt to kindle a fire. Unhappily for us, that very day the ploughman had been at the post-office in the village, and had called for us at school. When we came gravely home at the usual hour, we were

received with ill-boding signs, went to bed well whipped, and next morning had to convey with us, like Rosencrantz and Guilderstern, or Bellerophon of old, the missive of our own doom. This, as soon as he read it, the master, with a pedantically jocose grin, designated "Argive Epistles;" and while he held the *tawse* prepared in his hand for our behoof, pleasantly inquired if any boy of the senior class could name the exact personage in classical history who was most celebrated for this sort of letter-carrying. A dozen of them, fully entering into his enjoyment, guessed as many different characters of antiquity; the abominable old pedagogue, with unwonted good-nature, setting them right, and illustrating the fact with a Latin quotation from Ovid; we all the time standing in bodily fear before him, and I for my part calculating the probable number of times I should have to hold out my palm.

I remember an amusing scene, which occurred while we were at this country school, with a little boy of seven or eight, the son of a clergyman in the place, at whose house we sometimes stayed. He was a curious little fellow, as grave and serious as an old man, but quite possessed by the usual love of his age, fairy-books, and especially tales of giants. *Giants* to him were the great features of these; you would have thought there was nothing else real in the world, and that everything besides existed for their sake, to set them off as it were; a giant, in his idea, was the very perfection of all that was human. From the parlor of the "manse" we could hear him in his own bedroom, as he sat reading "Jack the Giant-Killer" aloud, in a clear sonorous voice, with the solemnity of a chapter in the Bible:—"And Jack went on, and came to a house where the giant he had heard of was sitting at the door eating his supper;" and so on. Of a Sunday, by way of change, it was the "Pilgrim's Progress," where Giant Despair and Doubting Castle were the prime passages; the scenes of the prisoners in his dungeon, and of the giant's conversation in bed with his wife, were dwelt upon with indescribable zest; the monster being all the while evidently regarded with favor, as a kind of injured hero, rather than otherwise. When the little boy came first to school, he was put in the youngest form; he did not seem at all troubled or bewildered, however, by the new scene of confusion, but sat pondering over his book in his accustomed grave manner, looking about him now and then as if he saw nothing extraordinary. His intelligence soon made him a favorite with the master, who was a good-natured man after all, and seemed amused by the cool familiarity in which he addressed him. One day, soon after little Brown's coming, his class was called up to read their lesson, and he appeared at the head of it. A boy who was reading came to the word *chagrin*, and was stopped to tell the meaning. "You?" "You?" "You?" said the master, to one after another. "You, Græme Brown, what is the meaning of *chagrin?*" Græme looked down for a moment, and up at the ceiling. "Give an example," said the master.

Græme Brown opened out immediately, as if quite at home, and in a solemn, measured sort of tone—"If one giant saw a man in a garden, and caught hold of him, and was going to eat him; and if another giant was looking over the wall, and came and took the man away, then the first giant would feel *chagrin*."

All the other boys laughed at this illustration. "Quite right," said the master; "but what in the world, boy, made you think of giants, eh?"

The boy stared up in his face with far greater astonishment. "Mr. Gow!" exclaimed he as solemnly as before, in a sort of reproving tone, "did you never read 'Jack the Giant-Killer?'"

"No," said Mr. Gow, almost taken aback, and, as Græme thought, naturally ashamed at having to confess his ignorance.

"Well, Mr. Gow," continued he, "I 've lent it to a boy, but I 'll lend it to you whenever he 's done."

"Why, the boy 's mad!" ejaculated the schoolmaster, unable to restrain his laughter—"perfectly mad! Go out to play, and don't let me hear you talking of such nonsense again! Ha! ha! ha! giants indeed!" said he, laughing to himself every now and then, but so taken with the idea, that it kept him in good humor for the rest of the afternoon; and he made the Latin classes read several passages in Ovid and Virgil, that showed it not to have been one unknown to the ancients. Græme Brown is now a man, and although, I daresay, he has found several giants to contend with in life, yet he would no doubt laugh as heartily if he remembered this incident, that first cast discredit on his childish studies and associations.

We used, after all, sincerely to detest that school, in which we sequestered rustics from the other side of the hills never got rightly acclimated. There was a local, feudal sort of feeling between the two districts, lingering, as I fancy, from the old Border days, when the Elliots, the Armstrongs, and the Scotts used to hold those ruined towers and fortalices, that here and there appeared amongst the trees by the bank of a stream. The boys of the village persecuted us, the only two strangers; they would have known us by our different tone of voice; and after school hours, we were only glad to get away into the long solitary road. By the hill footpath there were various little perils at times which we wished to avoid—a dangerous bull in one field we had to pass through, unless we crept along the other side of the hedge, over swamps and ditches. At the back of a farm-house on our way there was a ferocious dog, very often loose; and the farmer himself had marked us for depredations on his peas, beans, and turnips; while, on the other hand, there was a band of rough, rude elder boys that crossed every morning from a line of houses with a windmill in sight of the high-road, and would infallibly commence hostilities against us if

we came in contact out of the master's reach. In the evening, however, we generally preferred this course to the more solitary one, beset as that was with objects of dread, real and imaginary. At that hour we got off in time to escape our unfriendly schoolfellows; and till we got to the dark fir plantation, where the gypsies were encamped with their fire and their carts, had little else to do but contrive amusement for the way. That peaceful interval was the space into which were compressed most of our boyish freedom, our unrecorded dialogue, our speculations on the world and fairyland. Countless were the devices then resorted to; when the ripe hips and haws were on the hedgerows, each would choose his side, and stake his lottery against that of the other, as if the whole extent of nature were bounded by that variegated fringe, and this were quite our own. Then, when the country came in sight from a rising ground, we had a game of puzzles with the objects around us; one of us by turns fixed his mind secretly on something within view, from the stones at our feet to the distant tree up against the sky, while the other had a certain number of guesses allowed to find it out. On a knoll by the side of that road, too, there was an old thatched cottage, with an immense upright block of stone at the end of it. The place was called "Standing Stone," and there was a popular rhyme attached, which used regularly to afford us matter for the most serious inquiry, whether superstitious, mythological, or historical; shedding also a mysterious interest on the house itself and its inhabitants. The doggerel couplet involved a favorite quirk with the vulgar of most rural districts, though, somehow or other, it always seemed to have in this case an unusually imposing effect—

> When Stannin' Stane hears the cock craw,
> It wheels about and faces Gordon Law.*

One day we had just come in sight of "Standing Stone," I remember, when the most awful thunder storm I had ever witnessed on land broke out upon us. The lightning glanced behind the black uplands in the distance till you would have thought Smailholm Tower leapt from the blast of a furnace, and in again; then all of a sudden the fierce flash of it blazed out all around us, as if the whole earth and air were annihilated in light, while we stood first blinded and then deafened. One time it ran up the very middle of the sky like a ragged split from there to the horizon, a keen flare striking down far away on the edge, where it seemed going to melt everything up; the thunder crashed at once over our heads, rattling away round till I actually conceived, in my boyish bewilderment, that the day of judgment was come. The rain fell in white sheets, and we sat below the hedge under a joint-stock umbrella, which our mother and aunt made it the morning's victory, whenever they were up, to force upon us, and which it was with us as solemn a duty, if possible, to leave in the lobby. All the time Standing Stone, with its huge Cyclopean remnant—raised, as some said, by the Picts, and according to others, by no mortal strength—had been right before us; sometimes appearing to creep nearer, as it grew of a ghastly leaden darkness; sometimes far off in a dreary, desolate plash of rain, like arrows driving across it from over the clouds. When the lightning was dazzling down behind it, and the loud thunder rolled along, and it was heaved up again with its black shape as silent as death, it made me think of those who were to rise perhaps next minute; it had the look of the only grave in the world, with a tombstone at its head, and we the only living. Drenched we were to the skin, yet could n't think of going up to ask shelter. When the rain was almost over, however, and we were lagging past, as cold and stiff as need be, a man came out of the door behind to look at the weather. He no sooner observed us and our condition than he called us in. We were heartily welcomed by the goodwife, sat at a blazing peat fire surrounded by children, dined on potatoes and milk, and instead of going forward to school, spent several holiday hours there, or catching trout in the swollen burn. The terrible thunder-storm of course was in my responsible hands a ground of justification sufficiently expatiated on, so that we received sympathy rather than reproof for our aberrations this time. Oh, parents are so often deluded, poor, good, simple people, because they seem to forget so how their minds ran when they were children themselves! A man should carry youth in his heart to know the way of teaching, punishing, or praising a boy.

We were very fond of telling stories in those days, chiefly on our way from school, or when we had gone early to bed. The latter is the place for an imagination! A sort of serene throne it is, from which you overlook the kingdoms of faery, of adventure-life, and of dream-land. We used to fall asleep with the words of a history on the lips of one and in another's ear; drawling out longer and longer, and slower and slower, until the hero that "went on, and on, and on," finally vanished in solemn silence or a most picturesque snore. Sunday night was a great occasion with our blanket narratives, only we piously substituted then, for the adventures of Jack and his innumerable brothers, accounts of Noah's ark, Jonah in the whale's belly, and Abraham the patriarch. But, coming home from school, we made it a regular and necessary business; I, as the elder and more learned, would commence the vastest undertakings in the romantic line that ever were planned. "Dumas" or the "Wandering Jew" was nothing to me; I set off, without scruple, by endowing the insignificant parents with a family of children, whose dissatisfaction with their paternal roof was by no means extraordinary, as no human labor could have supported them—and all for the endless prospect of relating the haps, mischances, and achievements that befell them in the endeavor to "push their fortunes," and to meet again out of

* *Law*, a frequent Scotch name for *hill*.

as many different roads. From "Mair's Introduction" and Cæsar's campaigns it was but a sudden step, only passing the carpenter's shop at the end of the village, into the thread of these curious biographies, taken up where left off the previous evening. I think I see my little solemn-faced brother, with his large black eyes, looking up and listening as to an oracle of fiction, which was replenished as well from the utmost abandonment of capricious inspiration as from anything that occurred to ourselves. How he laughed at recognizing, through this conventional garb of "Hop o' my Thumb" and "Jack of the Bean-Stalk," a familiar incident! and how he was perplexed, and came out with the crudest simplicities of childhood when called upon himself for a story in turn! If I could just hear myself for one minute now babbling these foolish tales in the language they were phrased in, what would I give of the present lucubration! which would be truest to the heart and spirit of the time never more to be!

Enough, however, of such mere "green" innocence of school-going; those days, all their joys, their boisterousness, and their mischief, were milk and water to the times we entered on shortly after, on the removal of the household to a town seventy miles off. Before, we were only half school-boys; there was an idillic quietness and a fairy-like romance in our circumstances and our natures, between us and the hum of wooden forms, the drawling out of tasks. Every day there was a journey, with the school beyond for an appendage; harvest-time, weather, and accident came in; it was at home, with the farmer's children shouting through the stackyard, the cow-herding of a Saturday, the game among the trees, the circle round the parlor fire, that we found our attractions. The grammar-school of S—— was quite another matter. We were in it heart and soul; our companions and amusements were there; there was life, strife, the whirl and impetus of real combined boyishness, with all its tricks, plots, hostilities, and friendships: actually even emulation in the professed object of learning. The day we were introduced, as before, with our laughable green bags, still more country-like than formerly, I recollect well the hitherto unfelt pride with which I surmounted all these disadvantages, by rising place after place to the head of the second class, where I had stood up at the foot. It was the signal, indeed, of a superciliously hostile attitude on the part of my more aspiring classmates; but ever after, amidst all the reckless wildness of out-door habits, there was a pleasure quite as characteristic to me in the struggle to keep the position I had won. The approving eye of the master was on me, a first impression which on his part never wore off, in spite of the separate function he was perpetually called on to exercise, of chastisement for practical misbehavior. It is amusing to me at this day to remember, and somewhat affecting too, how the "doctor" was divided between his technical satisfaction in my Latin and Greek, and his disapproval of my irregular pranks. The old gentleman would put the question in succession, reserving me for the last; and I recollect few things that went more to my heart in those days than his disappointed expectation when I could not answer. He would turn me at once down to the foot, and delight in exciting my ardor to climb up again, by sundry little vexations and obstacles. The junction of the three higher classes every afternoon for "Mair's Introduction" or "Carson's Appendix" was a drawn battle-field, eliciting all the cleverness and quickness, more than the solid substratum, of every one. Boy after boy, who could correct a word of the reader, would call it out, or "trap," as it was entitled in school slang; I, on the other hand, was slow in my intellectual movements, however tenacious; down I often went to near the foot, and it was absolutely fearful to glance up the long row of boys between. The doctor would watch me from the corner of his eye; and I could have cried when the Dutch clock on the wall pointed at four, settling our places till next morning. I, for my part, seldom looked over a lesson at home except on such occasions; but well primed from dictionary and grammar—Ainsworth and Ruddiman—did I return. He knew when there was business in my face. In general, my trust was in chance inspirations and happy guesses from actual practice; a thorough grounding from my father, in old times of home tuition, gave me the advantage I had. The doctor would look up from his desk and see me busy with a knife at mine, or chewing paper to throw at the ceiling, with agonized figures thereto suspended; he would steal quietly round the corner of the class he was hearing, and the first I knew of him then was a sharp cut from his leathern many-fingered thong. Considerable, by the by, was the smart of that said pair of *tawse*, wielded by no inexperienced arm, when the unhappy culprit, returning too late from the "ten minutes" interval, had been making snow-balls. There was a certain number of strokes which an accustomed palm like my own could endure with comparative impunity; but the doctor had learnt what that limit was, and also could calculate the preparatory effect of wet snow. You would n't have expected the possessor of a dozen languages and dabbler in twenty, to be so knowing as he was in the office of a boatswain's mate. But a good soul—learned, indolent, and absent, when out of school—was the doctor; with his eternal Oxford-gray coat, his large shoes, his protruded under lip, and the lines of philology on his face; the many-bladed penknife, with which he delighted to cut the specks off a new volume; methinks I have him before me now, silently pointing with his fingers closed in the book to one perplexed boy after another! He was so kind as always to entertain the fixed notion of my being a genius, and having an aptness for Greek; so blessings be on him and his memory!

I really don't well know how to explain that spirit of mischief which possessed me then, and which was a byword in the town. It was, as I can only call it, the awkwardness of one intending

to do something fine, as well as the heedless abandonment to any object that turned up. Now and then I used to wonder at myself, and have a half suspicion it was done for a mask. In reality, if you had seen me amongst the rest, you would have said, "There is a stupid, quiet fellow trying to look lively, or else a sentimental character drawing the house and trees." But, at all events what old woman's teapot have I not broken with a stone down the chimney! What mother has not received her child with his head bruised by my "shinty club!" And what owner of an orchard has not had reason, on my account, to inquire after his best apples? Nevertheless, after I had gone to writing and arithmetic, and came back only for an hour's reading of Homer, the first figure I saw was usually that of my formerly shy brother in the act or passion of receiving a series from the doctor's instrument, he being then too hardened for the "helper's" minor thong. "Ah, C——," the worthy pedagogue would say to me, half reproachfully, "you were bad, but your brother is ten times worse!"

Fights in those days of course made up a great part of our existence, what with their preliminaries, their substance, and consequences. My first regular one was with a schoolfellow of my own age and size, and the quarrel arose more out of the will of our companions than our own. We were conducted in procession at the interval to a place behind school, the classic "Valley" and "Ladies' Rock" of his poetry who used to be writing in the neighborhood of our former village seminary. My opponent, apparently ready for the onset, was yet pushed upon me by his seconds, or else I dare say the first blow might never have been given; as for my part, I had then no particular taste for my own blood, and was trembling like an aspen, not so much from fear, as nervousness. The other seemed to think the whole matter turned upon the onset, and hit right and left upon my head and shoulders, without receiving a return from me, until my nose was bleeding and one eye swelled. "Well done, W——!" shouted his friends; and "Well done, C——!" cried mine, when I, all at once, utterly devoid of "science," rushed at my antagonist, who had paused under the idea of my being done already. "Now, W——!" said one spectator—"Now, C——!" said another, in quick alternation, as the contest thickened, and I showed an effect from my injuries contrary to what was expected. "Stick up, W——!" exclaimed one side eagerly, as the latter went stumbling back from a blow on the forehead, and as I followed up my advantage. "Stick up, man! bung up his other eye!" W——, however, was soft at bottom, heavy in his motions, and rather less persevering than myself, fiercely as he had come on; he flagged, vacillated, struck wide, and after twenty minutes' stout engagement, suddenly put his hands to his face and burst into tears. I confess I scarcely knew whether I had triumphed or not, though I felt I could go on for half an hour more, so furious had the blood made me, along with the dull swelled sensation of my half-closed eye. They were leading W—— away, when the well-known form of the doctor appeared in the distance, and all was a scene of tumultuous flight. I got home, rubbed my face with lard, and was contriving how to avoid presenting myself at dinner, when my late antagonist, his countenance thoroughly disfigured, and still crying, appeared at the door, led by his uncle. They came to accuse me of the crime of beating the said James, and for which I do believe my own personal state would not have secured me against a paternal drubbing, had the affair reached my father in its purity. In his view all fighting of this kind was heinous; in the present state of things, however, I am afraid it is necessary—to which it would no doubt have been rejoined that a good whipping is still more so. To the demands of the angry uncle, my mother, who had to be let into the transaction, opposed the undeniable answer of my wounded countenance, shining with grease; and my father, good easy man, was put off with the hazy idea of an unfortunate accident, running against a wall, or the like. Thanks to the recipe of hogs' lard, I appeared next morning in my place at school, although with a prismatic halo round one eye; whereas the lucky James contrived to make a couple of holidays out of his condition. Not a few other battles had I to go through for the assertion of my place; but in all, merely by stubborn determination never to be beat, and a sort of blind perseverance, did I come off victorious, so as in the end not to require any more. The most difficult part of it was to get free of annoyance from the idle "blackguard boys" beyond the pale, who would take every opportunity of tyrannizing over us when caught alone. Fair-play was by no means one of their rules, and it was only by dint of standing up boldly that any of us could enjoy the privileges of the town. Without a few successful encounters, one would have been obliged to sneak round the corners of the streets, or to confine his peregrinations to the garden; whereas, after that, you were recognized with respect as one of the initiated, and could join pleasantly even with them in a game at "buttons."

In our town, however, proceedings were frequently conducted on a more extensive scale. A bitter rivalry existed between particular schools; alliances were formed, and drawn battles appointed between them, somewhat similar to those in the cultivated little republics of Greece. Ours might have been compared to the polished Athens; that of the writing-master, or "Patie's," which was made up of grown lads, agricultural, commercial, and burghal, resembled cloddish Bœotia, and its friendship was alternately gained by contending parties, so as to decide the balance. Our unmitigated and much-dreaded foes were the boys of "Fraser's," a neighboring school, resorted to by all sorts and sizes, from hospital, lane, and country, and swarming with numbers. This was the Sparta of our land of war and letters, whose divided states no Amphictyonic council or Olympic games tended to soften, unless for some huger

mischief. "Fraser's" had all the Lacedæmonian contempt for learning, eloquence, and poetry, except when some rude Tyrtæus shouted the war-cry in vulgar rhyme. They were terrible in the strength of blackguardism, and had one or two dirty heroes whom there were few to meet single-handed. The battle was often fought in the street, or round the walls of the old Gothic churches at the top. When we were engaged in thick *melée*, stones flying, and sticks at work, a detachment would come pouring out of some narrow *close*, to take the grammar-school in rear. Then was it sad to the lover of his commonwealth; Athenians fled, or were captured; Spartans, that did not know "*qui*" from "*quod*," shouted pæans of triumph. If, again, it was the sudden cry of "*Patie's* is coming!" then the day was probably our own. Up from the back lane they deployed in tumultuous array. The dull Thebans, who were yet able to respect Attic culture, generally threw their force on our side, and many a stubborn champion of ignorance and blackguardism was pommelled to his heart's content. One campaign I remember that lasted several days. All the tactics of generalship, ambuscade, and military contrivance were put in action. Genius as well as courage was called forth; when, having snatched a hasty dinner in the interval, the whole grammar-school sallied forth at four o'clock, to arm themselves with sticks and stones. The "Valley" was a scene of confusion. A dense line drawn up on either side; missiles flying hot and heavy between; until an attempt was made by the town's officers, with signal defeat, to disperse us. On the last day it had fallen to a sort of guerilla warfare, and it would have been the utmost peril to venture along the edge of the Back Walk trees without good support. In the evening, most of our party had gone home; but the "Ladies' Rock" was held, fortwise, by a band of "Fraser's." I had collected with me a small detachment, which was augmented by a few friendly "blackguards," as we called them, who were bound to no system, and could be purchased by reward. In a moment of foolhardiness I led them full speed up the ascent, amidst a shower of stones. We gave a wild shout, gained the top, and flourishing our huge cabbage-stocks, ("kail-runts,") drove our opponents down on the other side. A whole host of small fry, however, were lodged at hand behind the wall of the town churchyard, and kept up a heavy fire on our exposed situation, which it was impossible to bear. All at once my followers deserted me, broke up, and disappeared; while I fled for bare life, pursued by half-a-dozen determined foes, who owed me an old grudge. Down through the trees to the foot of the hill, along the park, and across the fields, did I run on for absolutely a mile and a half, in the hope of distancing my enemies. At length I dropped down from sheer exhaustion, was seized unresistingly, and, silent for want of breath and hope, was led up in triumph towards the head-quarters. In this nice emergency, to my extreme joy, I was rescued by a journeyman printer whom I happened to know, and got home safe. Such were the haps and varieties of our schoolboy life, when it was in its glory.

Yet if there were school-day strifes and mischiefs, there were also school-boy companionships and friendships. Sentiment, indeed, was as abhorrent to that age as sermons; but it was, after all, the very time of a full, unhesitating, unthinking love. Sneaking kindnesses there were now and then, by the way, towards girls one would no more have dared to speak to than with an empress; but *this* was a free instinctive affection for some compeer, to whom it attached you, you knew not and cared not why. Again and again was this felt by me, and once or twice with an inxpressible force, that sense of being drawn to another unlike yourself, which never occurs in after years. On each occasion, by the by, the individual had some sister or female relative in whom the same features were only modified by the difference of sex, and towards whom the same emotion seemed to flit through me now and then, more distant and undefined, like the nameless identity in their eyes and faces. The love of David to Jonathan, that passed the love of woman, was for the brother of her whom he had sought so earnestly; and methinks it was nothing but a regard that could only have transcended love during the youth and school-days of the world; for the friendships of Greeks also were more pure and abiding than their marriages. On the part of my boyish friends there was no equal fondness; it was a solitary yearning with which I would lie on the grass behind the house of my companion, and wait till his leisure or caprice allowed him to join me. The associations, the imaginative force, and the fanciful longings, were only being gathered then, which, at a future epoch of character, would turn it fully upon some fair countenance more remote from my own nature.

But the world was waiting for us, and could not be put off much longer; the very discipline of boyhood was silently preparing each of us for life, to which those pranks and forceful energies, like the leaps and strides of a bather running down the sand, brought one plunging in, till he got suddenly beyond his depth, and must strike out to swim. So it was with myself; the wild spirit of mischief spent itself in bolder and bolder follies, that had already begun to include something of real emotion. Romance and sentiment contended with the need for action; of all spheres in the world for these, the ocean had most fully seized upon my imagination; and, by common consent of friends and foes, no other element but the sea was fit for such a pest to civilized society. So to sea I went; that step was to me the great one from boyhood into the stern affairs of life. It seems to me as if a like ocean in memory now rolls, with its foreign lands, its storms and difficulties, between my schoolboy days and now. It makes all beyond it affecting; I never see the little boy too late for school, with his bag and slate, opening the door in just foreboding, while the loud hum of voices is let out and shut in again, but I feel what an impassable chasm

is between him and me. Once I called at our old grammar-school to pay the doctor a visit of respect; the well-known class, all strange faces, read their lesson before me; I remembered the occasional visitors, former scholars in coat and hat, that used in our own day to do the same.

One of the most touching dreams I ever had, too, was one in which, with the vividest reality, I was once more driving the wooden ball before me with my "club" along the "Valley;" a throng of mingling and active figures were pursuing and meeting me; while one in particular, with his well-known tasseled cap, stood swinging his weapon in the midst. Another moment, and the whole scene was gone; I awoke with tears under my closed eyelids, and for a moment could almost think I felt the palpable vision relapse into that longing ache at heart from which imagination had shaped it. Farewell, oh time which we so often wish foolishly to renew, when it is *now* only that we enjoy it! But fare thee sweetly and well for those whom, year after year, it is enfolding! What is it that we more wisely deplore, or more often, than that we laid not up in it richer treasures for the future, and did not prize, at least as much as our sport, the sacred discipline, the healthful nourishment, of school!

From Chambers' Journal.

A MONSTER UNVEILED.

"Poor thing! I do feel for her. Though she is a person I never saw, yet hers seems a case of such oppression on the one hand, and such patient suffering on the other, that one cannot but"——

"Oh, I daresay you'll see her in the morning, for she often steals out then, when the wretch, I suppose, is in bed."

"But what could have induced a girl to tie herself to such a man?"

"Well, I don't know; the old story, I suppose—false appearances; for no girl in her senses could have married a man with his habits, if she had known of them beforehand. There is sometimes a kind of infatuation about women, I allow, which seems to blind them to the real character of the man they are in love with; but in this case I don't think she could have known how he conducted himself, or she certainly would have paused in time. Oh, the wretch, I have no patience with him!"

This little dialogue took place in one of those neat, bright, clean-windowed, gauzy-curtained houses, which form so many pretty districts within a walking distance of the mighty heart of the great metropolis, and between two ladies, the one the mistress of the said nice-looking cottage villa, and the other her guest, a country matron who had just arrived on a visit to her town friend; and the object of the commiseration of both was the occupant of a larger and handsomer villa exactly opposite, but apparently the abode of great wretchedness.

The following morning Mrs. Braybrooke and her guest Mrs. Clayton were at the window of the parlor, which commanded a full view of the dwelling of the unhappy Mrs. Williams, when the door quietly opened and was as quietly closed again by the lady herself.

"There she is, poor soul," cried Mrs. Braybrooke; "only look how carefully and noiselessly she draws the gate after her. She seems always afraid that the slightest noise she may make even in the street may wake the fellow, who is now, I daresay, sleeping off the effects of last night's dissipation."

Mrs. Clayton, with all the genial warmth of a truly womanly heart, looked over, and followed with her eyes as far as the street allowed, this quiet-looking, broken-spirited wife, investing the whole figure, from the neatly-trimmed straw-bonnet to the tips of the bright little boots, with a most intense and mysterious sympathy; then fixing her anxious, interested gaze on the opposite house, she said, "And how do they live? How do people under such circumstances pass the day? It is a thing I cannot comprehend; for were Clayton to act in such a way, I am sure *I* could n't endure it a week."

"It does seem scarcely intelligible," answered Mrs. Braybrooke; "but I'll tell you how they appear to do. She gets up and has her breakfast by herself—for, without any wish to pry, we can see straight through their house from front to back. About this time she often comes out, I suppose, to pay a visit or two in the neighborhood, or perhaps to call on her tradespeople; and you will see her by and by return, looking up, as she approaches, at the bedroom window; and if the blind be drawn up, she rushes in, thinking, I daresay, to herself, 'How angry he will be if he comes down and finds that I am not there to give him his breakfast!' Sometimes *he* has his breakfast at twelve—at one—at two; and I have seen him sitting down to it when she was having her dinner."

"And when does he have his dinner?"

"Oh, *his* dinner; I daresay that is a different sort of thing from hers—poor woman! He dines, I suppose, at a club, or with his boon companions, or anywhere, in fact, but at home."

"And when does he come home then generally?"

"At all hours. We hear him open the little gate with his key at three, four, and five in the morning. Indeed, our milkman told Susan that he *has* seen him sneaking in, pale, haggard, and worn out with his horrid vigils, at the hour decent people are seated at breakfast."

"I wonder if she waits up for him?"

"Oh no, for we see the light of her solitary candle in her room always as we are going to bed; and you may be sure my heart bleeds for her—poor solitary thing! I don't know, indeed, that I was ever so interested about any stranger as I am about this young creature."

"Dear, dear! it *is* terrible!" sighed the sympathizing Mrs. Clayton. "But does any one visit them? Have they friends, do you think?"

"I don't think *he* can have many friends, the heartless fellow; but there are a great many people calling—stylish people too—in carriages; and there is he, the wretch, often with his half-slept look, smiling and handing the ladies out, as if he were the most exemplary husband in the world."

"Has she children? I hope she has, as they would console her in his long absences."

"No, even that comfort is denied her; she has no one to cheer her; her own thoughts must be her companions at such times. But perhaps it is a blessing; for what kind of father could such a man make! Oh, I should like to know her; and yet I dread any acquaintance with her husband; Braybrooke, you know, would n't know such a man."

"My dear Mary, you have made me quite melancholy: let us go out. You know I have much to see, and many people to call upon; and here we are losing the best part of the day in something not much removed from scandal."

The ladies of course set out, saw all the "loves of bonnets" in Regent street; all the "sacrifices" that were being voluntarily offered up in Oxford street; bought a great many things for "less than half the original cost;" made calls; laughed and chatted away a pleasant, exciting day for the country lady, who, happily for herself, forgot in the bustle the drooping, crestfallen bird who was fretting itself away in its pretty cage in —— Road.

The next day a lady, a friend of Mrs. Clayton, who had been out when she had left her card the day before, called, and after chatting for some time, turned to Mrs. Braybrooke, and complimenting her on the situation of the house, "I find," she said, "you are a near neighbor of a dear friend of mine, Mrs. Williams."

"Mrs. Williams!" exclaimed both her hearers, pale with excitement and curiosity; "Mrs. Williams! Oh how very singular that *you* should know her, poor miserable creature! Oh, do tell us about"——

"Poor—miserable! What can you mean? You mistake; *my* Mrs. Williams is the happiest little woman in London!"

"Oh, it cannot be the same," said Mrs. Braybrooke. "I mean our opposite neighbor in Hawthorn Villa; I thought it could n't be"——

"Hawthorn Villa!—the very house. You surely cannot have seen her, or her husband, who"——

"Oh the dreadful, wretched, gambling fellow!" interrupted Mrs. Braybrooke. "I would n't know such a man"——

"He!" in her turn interrupted her friend Mrs. Eccleshall. "He a gambler! He is the most exemplary young man in London—a pattern of every domestic virtue—kind, gentle, amiable, and passionately fond of his young wife!"

"My dear Mrs. Eccleshall, how can you say all this of a man whose conduct is the common talk of the neighborhood; a man lost to every sense of shame, I should suppose; who comes home to his desolate wife at all hours; whose only ostensible means of living is gambling or something equally disreputable; who"——

"You have been most grievously misled," again interposed Mrs. Eccleshall. "Who can have so grossly slandered my excellent friend Williams? He cannot help his late hours, poor fellow. That may safely be called his misfortune, but not his fault!" and the good lady warmed as she spoke, till she had to untie her bonnet and fan her glowing face with her handkerchief.

"His misfortune?" murmured Mrs. Braybrooke. "How can that be called a misfortune which a man can help any day he pleases?"

"But he cannot help it, poor soul! He would be too happy to spend his evenings at home with his dear little wife, but you know his business begins when other people's is over."

"Then what, in Heaven's name, *is* his business?"

"Why, did n't you know? He 's the EDITOR of a MORNING NEWSPAPER!"

SPEAKING-TRUMPET.—At the meeting of the British Association, Mr. Whishaw exhibited the Telakouphanon, or speaking-trumpet; and in doing so, said that speaking tubes of gutta percha were quite new, as were also the means of calling attention by them of the person at a distance, which was accomplished by the insertion of a whistle, which, being blown, sounded at the other end quite shrilly. Attention having been thus obtained, you remove the whistle, and by simply whispering, the voice would be conveyed quite audibly for at least a distance of three quarters of a mile, and a conversation kept up. It must be obvious how useful these telegraphs must become in large manufactories; and indeed in private houses they might quite supersede the use of bells, as they were so very cheap, and by branch pipes could be conveyed to different rooms; and, indeed, if there were no electric telegraphs, they might, by a person being stationed at the end of each tube of three quarters of a mile or a mile, be made most speedily to convey intelligence to any distance. In private houses the whistle need not be used, but a more musical sound be produced. He then amused the auditors by causing the end of the tube, which was of the length of one hundred feet, to be inserted into the mouthpiece of a flute held in a person's hand, regulated the notes, and placing his own mouth at the other end of the tube, "God save the Queen" was played at a distance of one hundred feet from the person giving the flute breath. Turning to the Bishop of St. David's, he said that in the event of a clergyman having three livings, he might, by the aid of three of these tubes, preach the same sermon in three different churches at the same time. Mr. Whishaw also exhibited the gutta percha submarine rope or telegraph, which consisted of a tube perforated with a series of small tubes, for the conveyance of telegraphic wires; and which, for the purpose of preventing its being acted upon by sea-water or marine insects, was banded or braided round by a small rope, and its being perfectly air-tight would render it quite impervious to the atmosphere.—*Newspaper paragraph.*

From Chambers' Journal.

DOING AND DREAMING.

In our multifarious correspondence there is a class of letters capable of more extended application than the writers imagine. These letters are confidential communications, generally from young men discontented with their position in life, and anxious for advice as to how they may contrive to emerge into circumstances better adapted to their tastes and genius. Almost all of them state frankly the reason why they have been induced in this emergency to address themselves to the "Journal;" and that reason is, that it is the Journal which has touched with unwonted light "the sleeping images of things," which has stirred up their ideas from the bottom, and imparted a restlessness to their minds that seeks to relieve itself in some new course of action. Such, however, is not declared to be the effect of the mere expansion of mind brought about through the agency of literature; it refers more particularly to the authentic pictures we delight to give of the successful struggles of merit, and the rise of lofty and heroical spirits into power and fame, in spite of the adverse circumstances of fortune. Musing on these histories, warmed into generous enthusiasm, and stirred with emulative ardor, our inexperienced readers mistake the vague and romantic yearnings of youth for the throes of genius, and fancy that all they want to arrive at distinction is to be set upon the path.

Now, we are not opposed to a moderate indulgence of the imagination; we think, on the contrary, that it tends to good. The inner life of a man is as important as his outer life; and the former, like the latter, must have its moments of unbending and recreation. Our dreams of fame may give birth, when the proper circumstances arrive, to action calculated to assist in realizing them; and in the mean time they serve at odd moments to refine as well as amuse, and to float the free spirit above the cares and vulgarities of life. But the danger is, that this may go too far; that the dreamer may conceive a distaste or contempt for his ordinary avocations; and that, in fancying future greatness, he may neglect the sources of present comfort and respectability. It is therefore worth while to consider whether the vague aspirations alluded to afford any evidence of our being really superior to our present employment, and calculated to shine in another.

What has been the course of those remarkable persons who have risen from poverty and obscurity to be the cynosures of the world? Did their minds wander about in search of suitable employment? Did they feel an indistinct consciousness that they *could* do something, if they only knew what it was? Did they ask their way of the passers-by to the temple of fame or fortune? No such thing. They did their appointed work not only without aid and without a question, but in defiance of remonstrance and opposition. If mechanists, they converted into magical rods the humblest tools of the humblest trades; if philosophers, the phenomena of nature was as open to them in a hovel as in a palace; if poets, they poured forth their golden songs from the garret or the plough tail:—

> They lisped in numbers—*for the numbers came.*

It would seem, in fact, that vagueness and uncertainty are indications of a want of power, and that the very circumstance of a man's asking for advice, shows his inability to act upon it.

Let us look into literature for an illustration of what we mean. The profession is thronged by individuals who have no chance, and never had a chance, of success. How does this come about? Through dreaming. They mistook sympathy of taste for sympathy of talent, the power to admire for the power to create, and plunged madly into a business for which they were prepared by no study, and qualified by no natural gifts. The history of persons destined to succeed in literature, is different. Their first efforts come from them, as it were, unawares. Doubtfully, timidly, they cast their bread upon the waters, ignorant of the process it will undergo, and incredulous of the form in which it will return to them. But it does return; and in a form which makes their heart beat and their eyes dazzle—Money! They care not for money abstractedly; but in this case it gives them assurance that the coinage of their brain bears a distinct value in the estimation of their fellow-men. God bless that first guinea! No after-fortune can compare with it. The most intellectual of us all may sink gradually into the peddling, shop-keeping propensities of social men; but in the midst of the very basest vulgarities of life, we return proudly —and some tearfully—to the recollections of our first guinea!

Literature, as Sir Walter Scott has observed, should be used as a staff, not as a crutch. Remarkably few are able to make it the sole means of a respectable livelihood. At the very least, no rational person would embark in literature as a profession without having previously ascertained whether he had the power to live by it. With definite and *manly* plans we have of course no fault to find—let such be formed and receive due examination; but what we allude to is that unsettled, cloudy state of the mind which unfits us for the present, without having any influence upon the future. This state of the mind is more common and more fatal in youth than is usually supposed; and it is not the less so from its being induced by a mere mistake, which confounds the capability of doing with the habit of dreaming.

Again, we find, from the history of men who have risen from obscurity to eminence, that although they may be, in the common phrase, "the architect of their own fortunes," they are not the contrivers of those circumstances which have placed them in the way of fortune. While apparently preparing for what is to come, they are in reality merely following the bent of their own inclinations, till they are sucked, either gradually or suddenly, as it may happen, into the current of events. This is another lesson for dreamers. Things should be allowed to come about naturally. There should be a patient submission to circumstances; but let the best be made of them, and the rest will follow. If young persons have a consciousness of any taste or talent of a desirable kind, let them cultivate it quietly till the proper opportunity comes, and they find that they can trust to it for their advancement in the world. A remarkable instance may here be mentioned of the sort of fatality which governs the struggling genius. There was once a village lad whose name was Nicholas, and whose dream was Rome. This was no idle dream with him, for he had painted from his childhood. He would paint —he could not help it; and at Paris, to which he found his way, that he might look at better pictures than he could see at home, he copied some engravings from Raphael, which gave a still firmer bent to his genius. A gentleman who admired the arts

took him with him to Poitou, from which he returned moneyless, painting his way as he went along, to Paris. He became unwell, and went home to his native place—the village of Andeli on the Seine—and dreamed of Rome as he lay on his sick-bed. When he got better, he actually set out for Rome, and painted his way as far as Florence; but not a step could he get beyond that, and he returned, almost in despair, to Paris. Here, at length, he accidentally found a patron, who encouraged him to turn his face once more towards Italy; and in 1624 he did arrive at Rome. The result is thus told:—"Here Nicholas lived for a long time, miserably poor, but supremely happy; starving his body, and banqueting his mind. He fell in with a sculptor called François Flamand, whose circumstances were similar to his own, and these two lived and labored in a corner together, surrounded by the dreams and monuments of genius, and stealing out every now and then to sell their works for any pittance that ignorance would bid or avarice afford. But the pictures of Nicholas at length began to attract attention; and the humble artist was drawn from his solitude. This change of fortune went on; for although poverty or envy may retard the rise of genius for a time, when once risen, any attempt to repress it, however powerful, is like opposing a tempest with a fan. Every tongue was now busy with the new painter's name; every eye was fixed upon his face or his works; all Rome was shaken with his fame. This was soon told at Paris; and he who on former occasions had travelled thither a lonely, friendless, half-starving youth, was led to the capital of France in triumph, and overwhelmed by Cardinal Richelieu and the king with honors and distinctions. After the minister's death, he returned to Rome, and died there in the seventy-first year of his age, leaving the illustrious name of Nicholas Poussin a rich, a glorious legacy to his country."

It occasionally happens that the present business of our clients is of a nature which they think beneath their merits, and obstructive of their aspirations. In a state of incipient rebellion against their present employment, they long to be something else. A young draper, heart-sick of the counter, asks our advice—a teacher in a country school is dying to be a man of letters. We have no patience with these dreamers. Why will they not let things take their course? Earnest all the time in their respective callings, there can be no objection to their looking out for opportunities of advancement. For our part we should like as well as anybody to better our condition; and indeed, sometimes, when we see public affairs going wrong, we have a wonderful notion of a seat in the cabinet! But after all, as there must be a variety of employments, and people to fill them, the best way to manage is for each of us to *deserve* promotion, and hold fast by what we have got till we get something better. It is not the employment that makes us respectable, but our conduct in it. A footman on the stage, whose sole business is to deliver a message, has not a very dignified occupation; but nevertheless we expect him to get through it with intelligence and propriety; and if he fails to do so, from any notion that the part is beneath him, he becomes at once an object of indignation or contempt. This footman may be the author of the piece, or he may be capable of writing a better one; but the fact has nothing to do with his personation of the character, which is his actual share of the performance.

And this brings us to a point at which our homily may conclude. The supposed capabilities of a man for another employment should never have the effect of making him despise or neglect his present one, however humble it may be. If it is worth our while to do a thing at all, it is surely worth our while to do it well. If there be any false shame on the subject, it ought to be banished by the reflection, that there are vast numbers of men of worth and talent superior to ours, laboring, and laboring cheerfully, at still meaner employments. Besides, it should ever be borne in mind that, even in comparatively obscure situations in life, there may be, and is, the greatest earthly happiness. By a due culture of the faculties, by refining the sentiments, a common blacksmith may enjoy a satisfaction of mind equal to that of the greatest man in the parish. One who values genius merely as a means of advancement in the world, cannot know or feel what genius is. Yet on this false estimate are based a great proportion of the dreams which disturb the existence and fritter away the energies of youth. It is not spiritual, but temporal glory for which the common visionary pants; it is not the souls of men he desires to take captive, but merely their pockets; the paradise which opens to his mind's eye, beyond the counter, is composed of fine houses, gay dresses, and luxurious meals. The meanness of such aspirations enables us to say, without compunction, that he who indulges them no more possesses the intellectual capabilities he fancies, than he is likely to enjoy the substantial rewards of industry and perseverance.

NATURAL LAW OF CLEANLINESS.

In these days of universal wash-house, bath, and scouring propensities, it may be amusing, as well as interesting to learn what has been long since taught in the kingdom of nature by the silent but impressive method of example.

In endeavoring to illustrate our subject, we shall not enter into its minute details, but seek to glean the general truth from a variety of facts cursorily mentioned. Beginning even with inanimate nature, we find the lesson of cleanliness on her first page. Who that surveys the most ordinary landscape, unfitted perhaps to inspire the poet or awaken the imagination of the romancist, can point to any stain upon its smiling face, if the defiling contact of man be not manifest? The fresh raiment of the fields, the hard features of the rocks, the stream descending in clear, sparkling, laughing, tumbling waters, or stealing in slower measure through the plain; the spotless aspect of the driven snow, the smooth-laid surface of the sandy shore, the deep pellucid waters of the great ocean—these are all *clean*. There is no spot of filth to be seen in them, except when the purificatory process is actually going on. Then the heavens assume what we might perhaps consider a filthy aspect—the sky becomes clothed with sackcloth, the hills disappear in murky fogs, the mountain stream comes down in floods of mud, hurling along heaps of degraded materials; the sea casts up its mire and dirt, and at these times the law appears suspended; but, on the contrary, this is the very process itself by which the general result is obtained. In a little while all this seeming disorder ends, and the landscape only looks cleaner than ever when it is over. A vast practical benefit results from a chain of circumstances apparently so trifling as the gathering and discharging of a rain-cloud. All the impurities which a state of change necessarily entails, are thus re-

moved; not only is the face of the earth renewed, and the crowding vegetation which luxuriates upon its fertile bosom reinvigorated, but it is also washed *clean*, exposed afresh to atmospheric influences, while the gatherings of previous weeks are all swept down and deposited out of sight beneath the surface of the blue wave. Water thus appears the principal restorative of beauty to nature's countenance; but it is no doubt aided materially by winds, which scatter into the air the dust and other extraneous particles, which might and do collect upon the face of all natural objects.

We have a series of beautiful illustrations of the same attention to cleanliness of appearance in the vegetable kingdom, which, though in accordance with received usage, we class them under inanimate nature, we conceive to have a just claim to a different position. The provisions for cleanliness, however, are principally of the passive order. At first sight, one would be inclined to believe it almost impossible that a blade of grass, in immediate proximity as it is to a filthy soil, could be kept clean; the dirty splashings of a shower, or the down-pressing influence of a breeze, would suffice to take all the beauty out of an artificial grass-blade. How different the result! Pick a handful of the tender herb from the worst field, the very slushiest meadow, and it is found clean, fresh, shining, without a spot of dirt or any such thing, so that it looks as though it had but just left the hands of the Great Artificer. This result is principally due to the lustrous coat of silex with which the blade is provided, and the polished, glittering surface of which denies attachment to a spot of dirt. Grass, however, is by no means the only class of plants furnished with a similar provision, a glazed surface, evidently intended principally for this end. While meditating upon this subject, we have been much struck with a thought probably new in its application. Before our study stands a beautiful evergreen; here are leaves which were new just a year ago; clouds of dust have enveloped every artificial object exposed during the same period; but the leaves of this holly are as glossy and clean as though the creation of last week. Let the reader extend this remark, and remember how large a number of evergreen plants are apparently specially provided with highly-varnished surfaces for this very purpose, that the leaves, being peculiarly liable to become dirty, by reason of their long duration, may effectually resist the polluting influence of time. It is not forgotten that other ends may be in view also; but it is a well-known fact to the naturalist, that in the works of creation many effects are produced by a very limited number of causes. That this cleanliness of aspect is, however, due to something more than a nice disposition of surface, will appear when we reflect upon the utter impossibility of keeping any artificial substance, however highly polished, in a similar condition of cleanliness when exposed to similar dirt-disposing causes. Look at our window-panes, for instance: here is a surface that should resist filth, if that were all that is necessary; but a little time elapses, and while the ever-green leaves are ever fresh and shining, the reflected pane has become clouded with dirt. This effect is doubtless attributable to the cutaneous transpiration which is constantly taking place, and which loosens the attachment of dirt, so that the next shower washes all away, and the leaf is as glistening as ever. The velvety clothing of other plants contributes likewise to the same end; for dust will not, and water cannot, adhere to such a surface. Our beautiful and delicate companions the flowers are also furnished with a wax-like structure, by which means they are able to cast off the accidental pollutions of the ambient air. This effect is materially assisted by the position of the parts of the vegetable creature, such as the generally dependent curve of the leaf, the drooping of flowers; and at the period of their death, the dead portions drop, by a natural process, from the stem, fall to the earth, and are speedily hidden from view in the soil, from which, in a little while, they come not to be distinguished. Doubtless, also, the sober brown color of the mould, as well as the generally subdued tone of every natural landscape, adds much to the clean and unsoiled aspect of the whole, by, as it is commonly called, hiding the unavoidable dirt. The opposite effect would have resulted had the ordinary colors of earth been similar to its extraordinary ones: what, for example, would have been the uncomfortable-looking condition of things if the earth had been bright red, or yellow, or blue, in its ordinary tones? Things, however, have been differently ordered; and while we survey all nature, we may fully join in the expressions of Dr. Macculloch, and say that it presents that "universal look of cleanliness and neatness, which is as striking as if there was a hand perpetually employed in no other office, preserving an order which we cannot maintain in our possessions without constant labor."

Few minds will be found, we believe, which will resist the evidence here adduced to the existence of a law of cleanliness in creation; but if we turn to the animal kingdom, the testimony becomes quite conclusive. Many precautions against dirt in this, as in the other divisions of nature, are *passive*. No one that looks upon the glittering corselet of a cock-roach, inhabiting, as it does, the dusty cracks and crannies of our kitchen floors all night, and spotless as it is, can deny the conclusion, that there is an admirable proviso against filth in this insect. And the same may be said of the metallic-coated family of beetles, whose burnished backs repel alike the minutest speck of dirt or the heaviest pelterings of a summer shower; and the wing-covers of these beautiful insects are, without doubt, while they are the shields, also the dirt-repellers of the delicate, gauze-like wings so artfully folded up beneath them. Again, in the same division of zoology, consider the down and hair-clothed insects; or those that are cased in the loveliest array of scales, as the butterflies; nothing defiling will stick here, and the unsoiled aspect of every such insect sufficiently testifies the perfection of the arrangement. The glossy surface of the hair of animals is a similar provision for a similar end; and the facility with which it repels water, man often recognizes, and applies to his own purposes for coats, aprons, hats, or caps.

We probably judge rightly in supposing that the *active* demonstrations of cleanliness are the most interesting, and are likely to be the most impressive. The several means by which this is accomplished, supply us with the order in which we shall mention them. These are *combing*, *brushing*, *licking* and *washing*, four divisions to which nearly all may, we think, be reduced. One of the commonest and most curious examples of combing, for the purposes of cleanliness, may be observed by closely watching a common garden spider. These insects are particularly exposed to dirt; the dust of the air, particles of their webs, or defilement from their prey, become entangled in the hairs of their legs,

and would probably both materially add to the discomfort and to the disability of the insect for its active life, were they not removed. The wants of the creature have not been forgotten, and its mouth is furnished with serratures like the teeth of a comb. The insect puts its leg into its mouth, and gradually draws it through these teeth, so as entirely to comb off every particle of dust and dirt, which it then collects into a pellet, and carefully tosses away! In order that this operation may be thoroughly done, and no part of the leg escape, a little curved hook is added, which bends down over the edge of the comb, rendering the escape of any part of the leg impossible. When this self-cleaning operation is perfect, the insect with fresh strength betakes itself to its occupation. This curious fact appears long to have been unnoticed, and was first discovered by Mr. Rennie, who mentions it in an interesting paper published at the Royal Institution. The bird well known as the fern-owl, or night-jar, has an instrument on purpose to effect this object, a real comb. One of its claws differs from all the rest in length, and in the remarkable fact of its being serrated or toothed like a comb; and such is the intention of the contrivance. It was long mistaken for an instrument with which to wound its prey. Other naturalists perceiving its resemblance to a comb, and considering the whiskers of the bird, conceived that it was intended to comb the bird's whiskers. But against this ingenious hypothesis it must unfortunately be mentioned, that some of the species possess the comb without the whiskers, in which case its function must be, on that supposition, unnecessary. The celebrated Alexander Wilson, the ornithologist of America, decided the question by finding in the "Whip-poor-will," a bird belonging to the same group, and the inner edge of one of the claws of which is also pectinated, portions of down adhering to the teeth. He therefore very rationally concludes that this instrument is most "probably employed as a comb to rid the plumage of the head of vermin, this being the principal, and almost the only, part so infested in all birds." In another portion of that splendid work, he mentions that the night-heron, or "quabird," possesses also a pectinated or comb-like claw, which has from thirty-five to forty teeth, and is used for a similar purpose to that in the last case mentioned.

Under the head of *combing*, we are doubtless to include what is called the "preening," or, more correctly perhaps, the pruning of birds. Probably no creatures are more attentive to personal neatness than the generality of birds, and this they principally effect by embracing their feathers with the beak, then drawing the beak to the extremity, by which means all dirt and soil are speedily removed. In this healthy exercise it has been well said they have been "commanded to delight," for while it is a sanitary act, it is also one which seems to afford them great gratification. Were it not that this beautiful part of creation is always thus employed, what filthy objects would many become who have to seek their food in mud or in the earth! But, as Drayton has said, they are always

Pruning their painted breasts;

and thus, under the most disadvantageous circumstances, the lustre of the bird of paradise, or the snowy purity of the swan, is never to be seen dimmed by dust or defiled by mud. Still, under the division "combing," we may mention the most familiar example of all, the common blow-fly. Who that has watched the ludicrous care with which this insect attends to its personal appearance, has not been reminded of human actions! When we remember our own manœuvres with the clothes brush, and compare them with those of the fly dusting *his* jacket, the action has all the oddity of a caricature. How carefully he sweeps down the wings, and then his eyes and head, as if he were on the very point of presenting himself at court, or to the considerations of some fair friend! The microscope reveals his instrument. It consists of two rounded combs placed at the bottom of the foot, and consisting of two or three rows of teeth, somewhat like a currycomb; and this contrivance perfectly removes all extraneous matters, so that the cleanly insect flies off a complete beau, if lustre and absence of dirt would constitute one.

Brushing is the next division. The bee gives us a good example in point. This unwearied insect, in her perpetual search for honey, has to penetrate many flowers which abound in pollen or farina—the light delicate powder produced by the anthers of flowers. When she comes home, she looks quite an altered character, all dusty as she is with yellow pollen, so that she could scarcely be recognized as the modest brown insect which the morning saw depart from the hive. The principal cause of this is the hairyness of her body, the pollen particles sticking fast in the pile. The insect stops, and raising her hind-legs, which are set with thick hairs, she brushes every particle clean off; but as the pollen is valuable, she does not throw it away; on the contrary, she kneads it into little masses called bee-bread, and then enters the hive, having stowed it away in certain little pockets behind. Many spiders are provided with brushes of close-set hairs, which effect the same purpose; and the foot-cushions of the cat must be considered as instruments of similar intention. We are often presented with examples of *licking* as an operation of this kind. The cat takes incessant pleasure in it, and is very particular about her children too, whom she licks continually when they are young. Other animals have similar propensities, and hence arose the popular myth about the bear licking her cubs into shape, when she was, in fact, only giving them a maternal purification. Insects are equally fond of it, and repeatedly lick one another. By the same means they free their eggs or pupæ from dirt. Every one must also have witnessed, again and again, the scrupulous care with which many animals *wash* themselves. Birds are very fond of this practice, and perform the operation with a skill which evidently manifests that the instinct is heaven-taught. To get a mind-drawn picture of this feat, let the reader think of the manœuvres of a duck at a pond, or the more stately performance of a swan in a stream.

One of the most curious illustrations our subject admits of was discovered by the talented entomologist before-mentioned. It is a special apparatus for cleaning a very peculiar insect. At the bottom of a hole near an old tree Mr. Rennie found a curious grub, which he had never seen before. Taking it home, with a few small snails found in the same place, and watching the creature, he found it employed in a very anomalous manner. Its tail was turned up, and bent over its back, and every now and then removed again. For some time the object of the creature in this occupation was a complete mystery. At length the tail was examined, and the most singular apparatus was there found. In shape it was somewhat like a shaving brush: un-

der the microscope it was found to consist of a double row of white cartilaginous rays, which were retractile at the will of the creature, like the horns of a snail. In the interspace was a funnel-shaped pooket, which turned out to be a sort of little dust-hole. Now this was its manner of operation: the tail was bent up over the back, and applied to any part of the insect's body; the creature then caused the rays to retract, so as to make the whole act somewhat like a boy's sucker, thus drawing off every particle of dust and dirt from its glossy skin. This done, they were stored up in the little pocket until it was quite full, and then the insect, by a vermicular motion of the same instrument, caused the collected matters to be expelled in the form of a little pellet, which it was careful to deposit out of the way.

Not only are animals commanded by the author of their being to pay this regard to their personal cleanliness, but the homes of many among them are patterns of neatness and order. How often may we be amused at the diligence of the spider in keeping her net clear of the smallest particle of dirt! what lines will she not cut away and lay down again to secure this end! What a miracle of skill and neatness is a bird's nest, and how assiduously the parent birds remove every impurity from it! Even the proverbial filth-lovers, swine, are uncommonly particular in their homes; for it is well know that no creature is so anxious to have a clean and comfortable bed. And very probably the dirt-encasing gambols of these animals are to be excused on the score of an irritating cutaneous affliction, or are intended to resist the stings of insects. Let us hope, as we close this short article, that the lessons it is calculated to convey will not be forgotten. Let our poorer classes take just shame to themselves to be alone in their filth. While every domestic animal teaches wisdom, and while all creation exhibits the same pervading principle, will they be content to run the risk of opposing a plain precept of nature? Theirs is not all the blame, when we remember that even statesmen are only just alive to this oldest of all truths, coeval with the very institution of the present scheme. When it has been our lot to visit dirty habitations, and when we remembered the wide-spread lesson taught us in creation, often have Heber's words risen to recollection with a sigh, reminding us that

Only man is vile.

A Lady Freemason.—The Hon. Elizabeth St. Leger was the only female ever initiated into the ancient mystery of freemasonry. How she obtained this honor we shall lay before our readers. Lord Doneraile, Miss St. Leger's father, a very zealous mason, held a warrant, and occasionally opened Lodge at Donerail House, his sons and some intimate friends assisting, and it is said that never were the masonic duties more rigidly performed than by them. Previous to the initiation of a gentleman to the first steps of masonry, Miss St. Leger, who was a young girl, happened to be in an apartment adjoining the room generally used as a lodge-room. This room at the time was undergoing some alteration; amongst other things, the wall was considerably reduced in one part. The young lady having heard the voices of the freemasons, and prompted by the curiosity natural to all to see this mystery, so long and so secretly locked up from public view, she had the courage to pick a brick from the wall with her scissors, and witnessed the ceremony through the two first steps. Curiosity satisfied, fear at once took possession of her mind. There was no mode of escape except through the very room where the concluding part of the second step was still being solemnized, and that being at the far end, and the room a very large one, she had resolution sufficient to attempt her escape that way; and with light but trembling step glided along unobserved, laid her hand on the handle of the door, and gently opening it, before her stood, to her dismay, a grim and surly *tyler* with his long sword unsheathed. A shriek that pierced through the apartment alarmed the members of the lodge, who, all rushing to the door, and finding that Miss St. Leger had been in the room during the ceremony, in the first paroxysm of their rage, her death was resolved on, but from the moving supplication of her younger brother, her life was saved, on condition of her going through the whole of the solemn ceremony she had unlawfully witnessed. This she consented to, and they conducted the beautiful and terrified young lady through those trials which are sometimes more than enough for masculine resolution, little thinking they were taking into the bosom of their craft a member that would afterwards reflect a lustre on the annals of masonry. The lady was cousin to General Anthony St. Leger, governor of St. Lucia, who instituted the interesting race and the celebrated Doncaster St. Leger stakes. Miss St. Leger married Richard Aldworth, Esq., of Newmarket. Whenever a benefit was given at the theatres in Dublin or Cork for the Masonic Female Orphan Asylum, she walked at the head of the freemasons with her apron and other insignia of freemasonry, and sat in the front row of the stage box. The house was always crowded on those occasions. Her portrait is in the lodge-room of almost every lodge in Ireland.—*Limerick Chronicle.*

Voice of the Tench.—In the spring of 1823 I received from a friend a brace of very fine tench just taken from the water. They were deposited by the cook in a dish, and placed upon a very high shelf in the larder, a room situated between the dining parlor and cooking kitchen. On the following midnight, whilst writing in the dining-room, to which I had removed in consequence of the extinction of the fire in the library, my attention was suddenly excited by a deep, hollow, protracted groan, such as might be supposed to proceed from a large animal in extreme distress. It was twice or thrice repeated; and all my efforts to discover the source of the alarming sound were ineffectual. At length my ear was startled by a loud splash, succeeded by a groan more deep and long-continued than those which I had previously heard, and evidently proceeding from the larder. Inspection of that room at once explained the mystery. One of the fishes had sprung down from the shelf on the stone floor, and there lay with mouth open, and pectoral and ventral fins extended, and uttering the sounds by which my midnight labors had been so unexpectedly interrupted. Next day both fishes were cooked for dinner; and such is the tenacity of life in the tench, that although thirty hours had then elapsed since their removal from their native element, both fishes, after having undergone the processes of scaling and evisceration, sprang vigorously from the pot of hot water when consigned to it by the cook.—*Dr. Shirley Palmer.*

From Chambers' Journal.

BERNARD PALISSY.

This ingenious man began life as a poor boy, and his earliest recollections were those of turning a potter's wheel. From turning a wheel he was promoted to the making of pottery. His native village was Saintes, in France; and he lived about three hundred years ago. At that period the art of making earthenware was in a rude state in France, but enamelling was much advanced; and young Palissy thought he would try to find out how the finish of enamelling could be applied to pottery.

First he set about instructing himself in reading, and every spare moment he devoted to study. But when he had improved himself in these respects, he was greatly at a loss for money. This, however, he earned by his trade, and by drawing plans, for which he had a taste. This money was spent in experiments. While still a very young man, and without any proper means of supporting a family, he married. This was worse than an imprudence; he did not only himself, but others, a serious harm. In the midst of great difficulties he carried on his experiments; and these absorbed the means which should have maintained his family. The slightest improvement he succeeded in making in the process was sufficient to inspire him with the hope that he was at last about to reach the goal; and this hope nerved him to fresh endurance. In vain did he endeavor to inspire others with similar confidence. Every day bitter complaints burst from his wife, and frequently did his children join in their mother's supplications, and with tearful eyes and clasped hands implore of him to resume his former occupation, and give them bread. Palissy met the reproaches and prayers of his wife, and the tears of his children, with inflexible resolve and the most imperturbable composure, apparently as insensible as the earth which he was moulding. But was he really thus indifferent? No; there were moments when despair was at his heart! "Nevertheless," we quote his own words, "the hope that I cherished made me work on with so manly a courage, that often I forced a laugh when I was inwardly sad enough."

Derided, treated as a madman, suspected of being now a coiner and now a sorcerer, he was proof against all. At length a new combination made him believe himself on the very point of succeeding, when a potter engaged in his service suddenly demanded his discharge and his wages. Palissy, having neither money nor credit, was obliged to sacrifice part of his wardrobe to pay him; then, impatient of the interruption, returned to his furnace, which he had constructed in his cellar—returned to it to find that it wanted fresh fuel, of which his stock was exhausted. What was to be done! Upon the baking of this new essay his last hope depends. He rushes out to the garden, tears away the trelliswork, breaks it up, and the furnace is again heated. But the heat is not to the proper degree of intensity, and in desperation Palissy throws into the furnace his furniture, the doors, the windows, nay, even the flooring of his house. Vain are the tears, the entreaties of his family; wood is wanting for the furnace, and everything combustible that he can lay hold of is remorselessly sacrificed. But now one prolonged cry of joy echoes through the cellar; and when the wife of Palissy, startled by the unwonted sound, hastens to her husband, she finds him standing, as if in a stupor, with his eyes fixed on the brilliant colors of a vase which he held in both hands. Success had crowned his efforts.

Rapidly now did his circumstances change. His success, so dearly bought as it had been, was followed by still greater advances in the art, and he was now at the head of his profession. Wealth flowed in, and his fame spread far and wide. He had several patrons at court, amongst whom was the Constable de Montmorency, who employed him to execute for him some rustic pieces, as they were called, consisting of figures of animals in earthenware. He resided at the Tuileries, opposite the Seine, and was surnamed Bernard of the Tuileries. Nor was he content with the fame of a mere artist, but turned his attention to almost every branch of natural history and philosophy, and is said by Fontenelle to have made as much proficiency as genius without learning could make. He was the first person who formed a collection of specimens of natural history, and gave lectures upon them, to which the public were admitted on payment of half-a-crown, which he engaged to return fourfold should anything he taught be proved false. He wrote several treatises on a variety of topics, full of original and striking thought. He was the first who taught the true theory of springs, and who ventured to assert that fossil-shells were real seashells deposited by the waters of the ocean. He also was the first to perceive and recommend the use of marl and lime in agriculture. His ardor and strength of character were not less conspicuous in his attachment to the religion he professed. He was a Protestant, and became exposed to persecution during the time of the League. In 1584 he was apprehended and committed to the Bastile. The weak King Henry III., who rather favored him, having told him that if he did not abjure his religion for the prevailing one, he should be constrained to leave him in the hands of his enemies, the intrepid Palissy replied, "Your majesty has often condescended to say that you pity me; for my part I pity you for uttering the unkingly words, 'I shall be constrained;' but I tell you, in more royal language, that neither the Guises, nor your whole people, nor yourself, shall constrain me, a poor potter, to deny my conscience."

Thus was the same zeal and indomitable firmness which marked his career as an artist carried by Palissy into his devotedness to his higher interests as a Christian. Of his religion and his trade he was wont to say, "I have no other property than heaven and earth." He died in the Bastile in 1589, at the age of ninety

From the Journal of Commerce.

VIA DOLOROSA.

We attended the funeral of an aged citizen on a cold Sunday afternoon, not long since. His remains were conveyed to Greenwood Cemetery, to await the resurrection in company with thousands of our dead, who already sleep, or who soon will sleep, in that hallowed ground. It is well called "hallowed ground;" for to us no place is more sanctified than that where the links of the broken chain lie, from which the freed soul has gone to rest.

It was a bitter day. The wind from across the water was chilling and cutting, and the close carriage hardly sufficed to protect us from its severity. As we passed through the streets, we noticed that sombre air of the windows and houses which an unpleasant autumn day always causes, and the faces of people in the streets were pinched and gloomy. Men drew their cloaks around them, and hurried along the pavements, only looking up for an instant as the hearse passed, and shuddering yet more coldly at the coldest view which earth affords.

A singular interest is visible in every man's mind, when he sees the procession which follows a fellow-man to burial; and it is by no means wonderful that it should be so. Yet it is remarkable that a birth, which is the commencement of an immortality, should be regarded with less interest than a death, which is but a change in the course of immortality.

The carriages had not left Atlantic street, in Brooklyn, before we began to meet a novel class of persons. Novel, we mean to say, as a *class;* for mourners are plenty enough in the world, and we meet the garb of some hourly. But it is not often that one meets with a continual flow of carriages, all of which contain weepers, returning from the graves of friends. The road from Atlantic street to the entrance of Greenwood is emphati cally a *via dolorosa*. We met first a carriage with closed windows, which went swiftly by our own, but not so swiftly as to prevent our seeing in it a lady with face buried in her hands. She was alone, perhaps a widow returning from a well-beloved grave, or a mother from a child's sleeping-place. Scarcely had her carriage passed, when we met two others in which appeared to be a whole family, and following these an empty hearse, and another and another after it, and so on, until we had met five hearses, and carriages more than we could count, bearing mourners. Some had returned from the burial that day, others had been to visit graves, with that beautiful affection which leads us to linger around such spots, as if there the souls of the departed also lingered, with somewhat of love mayhap for the dust which once imprisoned them.

The train in which we were moved but slowly, for it was of great length, and in it were many on foot who followed their friend to the gates of the cemetery. Other trains of less length passed us swiftly. Three hearses with accompanying carriages passed us thus. In one we saw the coffins of two children, as the wind lifted up the hearse curtains and swept coldly over them. In a carriage which followed another, we recognized the face of a man who had lost a son the Friday previous, as we knew by the obituary notice in the paper.

As we approached the cemetery, we looked back and saw still more of these solemn processions coming across the plain at the head of Gowanus Bay, and as we entered the avenues, we saw here and there, among the leafless trees, groups standing with heads uncovered, around open vaults or uncovered graves. It was like entering a vast temple in which men of all creeds assembled to do homage to the instinctive idea of immortality, (for that idea is at the foundation of our care for the dead,) as we entered the forest arches of the holy ground. "God's acre" there is rich with treasures for the day of awaking.

As we passed the gateway, the sun, fast setting across the bay, broke from the clouds, and a flood of glorious light bathed the hills and trees and gilded the gleaming monuments; but as we stood at the foot of the grave on a high hill overlooking the cities and the water, the sun went down, and a cold blast swept the dead leaves along into the grave, with the man who had faded like a leaf in autumn, and whose sun, as that sun, had gone down in the evening of a long and tempestuous day.

Any one who will take an afternoon ride to Greenwood, will no longer wonder that a city like this can afford business to stores which sell nothing but mourning.

LIBERIA.

[We are glad to see that England assumes a favorable attitude towards the new republic; which offers her a *probable* result in the suppression of the slave-trade.]

We stop the press to announce the following highly important and gratifying intelligence, of the action of the British government in reference to the republic of Liberia, and its president, General Roberts. If there was any sincerity in the professions of lively interest for Liberia, uttered a few years ago by the government at Washington, no time will be lost in following the politic example of Great Britain, by a frank recognition of the new republic and a treaty of commerce with it.

A proffer by the British government of money for the purchase of the territory intervening between Sierra Leone and Liberia, is in many aspects a most important one. It is a practical acknowledgment of the wisdom of our colonization course, and may be regarded as the beginning of a new line of policy, to be pursued for the extinction of the slave-trade, and the civilization of the interior tribes of Western Africa.—*Colonization Herald.*

London, November 24th, 1848.

E. Cresson, Esq.—

My Dear Friend—You will learn with as much pleasure as I communicate it to you, that President Roberts, having succeeded in procuring the recognition of the sovereignty and independence of the re-

public of Liberia, has entered into and completed a treaty of amity and commerce on terms of perfect reciprocity with the British government. This important document has been signed, sealed, and delivered; and the president having completed, in the most satisfactory and successful manner, all that he desired, is now about returning home in a sloop-of-war, specially offered to him by the British government to convey him and family to Monrovia. He sails on the 2d December. Thus has been completed the most important mission that could be, for the welfare and prosperity of the infant republic. President Roberts has manifested great talents, as well as good sense, judgment, and discretion, in all that he has done since he has been in Europe; and he has been eminently successful, not only in this country but also in France, whose government, you are aware, acknowledged the infant republic without any delay after a formal application was made for it by Mr. Roberts. But I have still excellent news to communicate to you. Lord Palmerston and the whole government being exceedingly desirous of putting down the accursed slave-trade, having conferred with the president on the best means of accomplishing it, have (almost) agreed to furnish President Roberts with £2,000 to purchase all the territory lying between the boundaries of Sierra Leone and Liberia, where the slave-trade is carried on extensively; and the president pledges himself that the slave-trade shall be forever abolished from the whole line of coast from the furthest extremity of Liberia (east and south) to the confines of the British colony of Sierra Leone. What a most important acquisition to the cause of humanity!

President Roberts was to call upon the Bishop of London to-day by special request of his lordship, who wants to introduce missionary efforts into Africa, through the republic of Liberia. I told the president that the bishop is so rich, so powerful, and altogether so great a man, that he must let nothing interfere with his going to see him. The president is to dine with Chevalier Bunsen this evening. This gentleman is the ambassador of Prussia, and representative of the German empire. I hope good to Liberia may be the result. Mr. Roberts does good wherever he goes; he is so excellent a man that he wins golden opinions from all men. I do not know a man for whom I have more respect; fortunate is the new republic in having such a chief magistrate.

Yours, most faithfully,
G. RALSTON.

HUMAN PROGRESS, THE PROVIDENCE JOURNAL, AND THE CHRONOTYPE.—The Providence Journal, after a month's preparation, defends itself with excellent generalship against our Providence correspondent's charge that it is "one of the greatest obstacles in the way of human progress," in that city. Our cotemporary's wit being almost as great as its wickedness, we cannot forbear quoting a paragraph or two from its defence. It will be perceived that it has soaped its nose to the utmost lubricity before entering the lists, so that there is no chance for a rejoinder on our part.—*Chronotype.*

We have gone, not always editorially, we admit—how is it possible "that one small head should carry all" these things?—but through what the New York Herald would call "our unrivalled corps of voluntary correspondents," for all sorts of reforms, upon all sorts of subjects, for everything that ends in *ism* or *ology* or *pathy*. We went for homœopathy, hydropathy, and one other pathy, the name of which we have unfortunately forgotten; and this very day, we publish an article upon isopathy, which is later and of course better still, and which seems very reasonable and natural like. The principle of cure is the application to the diseased organ of a similar organ of a healthy person. Think what a remedy for sore lips! Of course a patient would be allowed to select his own physician. On this subject of *isopathy*, we regret to say that our friend of the New London Chronicle, an exceedingly irreverent man, and a disbeliever in many of the most important discoveries in "human progress," is wholly incredulous. We commend him to the correspondent of the Chronotype. He *deserves* all that has been said of us upon the subject.

But to go on with our own merits; we were among the first to give in our adhesion to animal magnetism, and we went the full length of pathetism and another ism in the same connection. We puffed La Roy Sunderland's lectures, and we strongly recommended a course of lectures on Fourierism, illustrated by an immense picture right over the desk of the lecturer. We reviewed Andrew Jackson Davis' book in four communications, of such orthodoxy that our excellent friend, Professor Bush, sent for all the numbers, and they were copied, at length, into those papers which are generally regarded as the accredited organs of the unseen world. It is not long since we published a mesmeric prescription for the treatment of cholera, and we faithfully placed before our readers the whole story of an awful murder in Massachusetts, detected by means of animal magnetism. We have not yet expressed our indignation at the jury in Worcester which recently refused to convict a man of the same crime on the testimony of a very remarkable dream. We have not enumerated half our services to human progress, all of which, we think, should entitle us to a first class office, if the party of human progress should ever get into power. If indeed there be any principle or process, any idea or suggestion or vision of transcendental philosophy that has escaped our notice, just trot it out, and it shall have a fair chance in our columns. But after all this, we will not endure to have it thrown in our teeth, that we are enemies of human progress; it is shameful and slanderous ingratitude, and we look to the Chronotype, by its sense of justice, to retract the charge of its correspondent.

The same letter accuses us of speaking in a "flippant" manner of the Free Soilers and of the Chronotype. We will not deny that we have, from time to time, indulged in some rather plain remarks touching the Free Soilers, and especially the Van Buren branch thereof, but we have never been so indiscreet as to attack the Chronotype—not we. That paper has a way of striking back again much more agreeable to the lookers on than to the subject of the operation, and we have always endeavored to keep on the sunny side of it. We have always said that it was the boldest, spiciest, sauciest, most readable and thoroughly provoking paper that could be imagined, and we have always advised our readers to buy it and read it, and laugh over it, and to take especial care not to be led away by the heresies in which it abounds.

CORRESPONDENCE.

[Our correspondent's letter of 10th December, which is alluded to in the following, has not come to hand. We are very sorry to lose anything he writes.]

Paris, December 13, 1848.

Professor Chevalier has given us, in the Journal des Débats of the 11th and 12th instant, long articles on American politics. He expounds the several parties in the recent elections favorably, on the whole, to our institutions and national character. The Americans, he observes, have good practical sense, and when abstract principles seem to clash with their experience, it is their custom to keep those principles under the bushel until they be enlightened by new facts. He ascribes to the formation of the free soil party greater importance than it is likely to retain. *Expedients*, when they once fail, soon cease to be operative. Chevalier thinks that our slave-holding states may be in danger, when it shall be proved, by the results of abolition in the West Indies, that the negro can be free and yet so work that production will not be affected by his emancipation. Hitherto, the contrary appears. The professor adds—"We are not in the number of those who predict an early rupture of the American Union from the conflict between the slave-holding and non-slave-holding states. Nothing warrants this anticipation. It is like the old story of the downfall of the British power from national bankruptcy, constantly and confidently foretold for a century, and nevertheless becoming every day less probable. The American people, in their dissensions, possess the rare and meritorious wisdom of abstaining watchfully from extreme measures. The utility of the union for everybody—its most prolific, universal utility—is present to all minds. Disputants grow hot and angry; the agitation of parties rises high; but, sooner or later, all is settled by one of those compromises which appertain to the essence of representative government. Thus, the constitutional right of the slave states to exclusive control of their internal economy, will, in the end, be respected, and slavery be left to recede from region to region, under the impulse of new circumstances, such as are begetting a change in Maryland and Delaware. It is, however, undeniable that the slavery question is thorny and embarrassing; prudence and firmness are necessary in a president; the choice of General Taylor seems fortunate on this head; soundness of judgment and moderation of spirit are evidenced in his whole life." The professor draws fine portraits of both the president and vice-president elect. He concludes his first article by a brief exposition of the marvellous progress of the United States, in population, agriculture, and manufactures, and of their magnificent enterprises and prospects—"Happy land, flourishing republic! such are the fruits reaped where the laws are held sacred—where public intelligence and opinion have authority sufficient to restrain, within legal bounds, turbulent minorities and hot-headed leaders, to be found in all countries." The second article is M. Chevalier's eleventh "Study of the Constitution on the United States," and treats of the election of president in its principal details. His historical survey is ample; his account of the party-conventions accurate and admonitory; he could wish them to be measurably imitated in France; he blames the French *moderates* for not having organized themselves separately with a candidate of their own; he admires the American uniform adoption of men recommended by positive national services and tried intellectual faculties; he condemns the preference of military worthies to eminent statesmen; but here, he does not rightly or thoroughly comprehend the influences, circumstances, considerations, under which that preference has been practised in three only out of twelve elections.

Several of the Paris journals contain biographical sketches of General Taylor; in one of them he is sent to India to fight, we may presume the Sihks of Lahore; the text is curious: "In 1810 he married, and immediately thereafter troubles broke out in India. Lieutenant Taylor manifested so much intrepidity in quelling them, that, in 1812, he was promoted to the rank of captain, and nominated commander of Fort *Harrison*." According to another of these articles, a grand national convention is to meet at Washington in February next, to proclaim his election.

Our French paragraphists are not particularly struck with the capacity of the negro-race to maintain republican institutions, as it is exemplified in the monopoly of the products of the soil and of all traffic, internal and external, by the government of Hayti. The black man—the true ebony—in the delegation of the Antilles, who sits in the centre of the Montagnards in the Assembly, was the servant of a white general resident in this capital. An intimate acquaintance of the master told me, a few days ago, that the representative had not resigned his domestic post, whether from personal attachment or prudential motives; he would deserve credit for either. A gentleman of New Orleans, on a visit to Paris, relates to me that, about a fortnight since, while seated in a side-box of the first tiers of the grand opera, he distinguished a colored family in the one immediately opposite; by his opera-glass he discovered that the head of it, whom he recognized, distinguished him, and was about to come round to him by the lobby. A feeling natural to a southern American induced him to prefer that the interview should not be in the box which he occupied. He met the visitor in the lobby; the latter grasped his hand, and reminded him that he had been his tailor at New Orleans. "I retired," he added, "with a good property: we are well-settled here; that 's my box, once a week; we shall be happy to see you at our apartments."

My epistle of the 10th inst. was sealed at one o'clock, for the early post-hour. At that period the shop-keepers had closed and barred their doors and windows, and sallied forth with their families to mingle with the ubiquitous throng. Before three, the promenaders, in the fashionable division of the

garden of the Tuileries, could not have been less than ten thousand, of whom well-dressed ladies and beautiful children formed the great majority. The verdure of the parterres remains unimpaired; splendid camelias are exposed in the open air. This day (13th) the temperature is still mild and genial. Though the masses on the boulevards and on the principal *places* manifested high excitement, and the precincts of the stations, where the votes were received, bore a menacing aspect, no absolute riots occurred. Between eight and ten in the evening, the rich moon-light and the blaze of the gas-lights, exhibiting the crowds for miles in a more picturesque way, impressed a double vivacity and beauty on the scene. A very interesting company assembled in my saloon, by ten; they had passed through the various throngs, without the least molestation, and with no fear of the return home; and they seemed to have caught additional spirits and good-humor from the animation of the streets. Later, indeed, a few *gentle* charges of cavalry dispersed unruly or too noisy multitudes near the Portes St. Martin and St. Denis. On Monday, the atmosphere was equally bright and balmy; the polls were thronged; cries of Vive Napoleon! and Down with Cavaignac! sounded at every corner, and on the open spaces. A cart filled with Cavaignac tickets fell into the hands of a phalanx of *gamins*, who made a bonfire of the contents, on the Boulevard Montmartre; nothing else happened to set the Republican Guard and the *Gardiens de Sureté* in quick motion.

Through both days, bodies of unarmed soldiers were met in every direction, repairing, with subalterns or captains at their head, to deposit their suffrages in the urns. The garrison being reckoned at fifty thousand, you may imagine that the exercise of universal franchise heightened the aspect of the diffused array of military force for the maintenance of order. All the staffs were in readiness at their respective head-quarters; aide-de-camps trotted in every section; *reconnoissances* were made from the station of the commander-in-chief of the national guards, as if a foreign enemy had entered the faubourgs; the posts of the guards were materially increased; all the soldiery and garde mobile, not on their way to vote, stood equipped and provided for battle. Cavaignac had become more odious to the faubourgs by his honest declaration in the Assembly, that he saw in the barricades, not a *police*-affair, but a case of battle—of downright war; and that if Charles the Tenth and Louis Philippe had taken the same view in time, the issues of the insurrections of July, 1830, and February, 1848, would have been different. He has been burnt in effigy at Lyons, where the Red Republic is, proportionably, even stronger than in this capital.

Yesterday, considerable bodies of horse and foot escorted the *urns*, in the translation of them from the sections to the offices of the mayors. In the morning, the severe decree of the National Assembly, passed last summer, against *attroupements*, or large gatherings of the people, was posted at every corner, by order of the prefect of police, with the announcement that he was determined to enforce it with the utmost strictness and vigilance. All is calm this forenoon; but as the returns from the city and environs, and a number of the provinces, leave no doubt of the complete triumph of Louis Napoleon, it may be difficult to prevent loyal manifestations to-night. The journals devoted to him exult without mercy; the revolutionary and socialist leaders and clubs, that could not reclaim their bands from the wild cry of Napoleon, vent their chagrin in the bitterest contempt for universal suffrage, and the ignorance and stupidity of the *clodhoppers* in the provinces. Their votes should have no valid character, says the journal *La République;* and another oracle exclaims—"Oh, the miserable sheep-masses, (*troupe moutonnière,*) who let the emperor go to St. Helena, and now adore his insignificant nephew; who make revolutions one day, to undo them on another!" A third finds consolation in the idea that the people will not spare the oppressors and traitors the third time, to be duped and enslaved again as they were on the first and second victories over the monarchy.

It is conceded on all hands that "the nephew of his uncle" must have obtained an absolute majority; by which singular though not inexplicable consummation the National Assembly will be relieved from the dangerous necessity of a choice between Napoleon and Cavaignac. The prince will better know by whom, than for what, he is chosen; never was a human being carried to the pinnacle in any country, large or small, by so great a variety and contrariety of motives and designs, and by so many adherents utterly unacquainted with the qualities, principles or purposes of their elect. You shall have, early, my explanation in full, of the phenomena; you may read in the London Times, of the 11th inst., an excellent preliminary article. A very considerable sum must have been expended by Louis and the Bonaparte combination, in this business. An eminent banker mentioned to me, the day before yesterday, that acceptances of the *prince*, for large amounts, had been offered to him on the exchange. The "spoils" will raise the credit of his signature. Public stocks have advanced, owing to his vast presumed majority, which will give him the benefit of incontestable universal suffrage, to the force of which—constitutional, popular, and military—all the factions must yield for a time. The majority of the National Assembly, being wedded or pledged to republicanism, have multiplied tokens of their intention to remain as a check on him and the monarchical veterans whom he may call to his councils; but political and personal steadfastness is not the characteristic trait of Frenchmen; proneness to worship the rising sun is rather more remarkable; he may detach a portion of the majority; the policy and effort of himself, and his immediate supporters of every connection, except the republican and radical, will be to get rid of this Assembly as soon as possible. The club of representatives, ex-deputies of the Rue de Poitiers,

began to manœuvre and vote to that end, as soon as they saw their influence on the floor forfeited by their proscription of Cavaignac. There is a general impression that the Napoleonian victory, if as enormous as described, tolls the knell of the Assembly, or portends a death-struggle between that body and Louis and the monarchical cabals. The sitting of yesterday afternoon had a new character and temper. A representative, who studied appearances, has just informed me that there was no longer the same eagerness to salute Cavaignac or approach the treasury-bench. The general kept his seat, throughout the proceedings, with an air of stern equanimity; one of the questions debated—that of waiting or not for the votes from Algeria before proclaiming the new president—induced remarks on the nature of the election which might have ruffled his spirit. Some of the Napoleonist journals have no mercy on the vanquished. Let me translate a specimen or two of their gibes. "The poor Assembly! they are decidedly done over; at the sitting, yesterday, the report circulated that Louis Napoleon will be four or five millions strong out of seven millions at least of suffrages given; the poor ministers, how crest-fallen on their seats, on which they sat upright a few days ago, and on which—happily for France—they will not sit beyond next week! Monseigneur Fayet, that patriotic Bishop of Orleans, who devoted himself to the Cavaignac clique, left the house along with the discomfited general; he must have gone to administer the last sacraments to him; this was natural; he stood by him from the beginning of his long agony. The executive chief took pains to inform the country, that he, like his regicide father, was a good Catholic; he wishes to die as becomes one; light lie the earth on him. *Requiescat in pace. Amen!*" *La Presse*, the chief and most efficient engine of Louis, rallies the republicans in the same vein. "Yesterday's sitting may be styled the *sitting of long faces;* we should have laughed, perhaps, if Monsieur Marrast had not occupied his chair of speaker. But, one must have sucked a tigress of Hircania not to have been moved at the sight of his deep affliction. Truly, Monsieur Marrast, your chagrin is excessive; we comprehend how cruel it is to see all the dreams of fancy, the visions of sumptuous palaces and enchanting festivals, vanish thus in twenty-four hours. But who knows—all is not lost—perhaps; his republican highness does not lack perspicuity, adroitness, and pliability; and, as for transitions and transformations, the republicans have sufficiently proved that they are a match for the most renowned harlequins and jugglers. Monsieur Marrast must not wail and despond too soon; yesterday, it was evident that he had fever; we never before saw him consume so enormous a quantity of *eau sucrée*. We left the house in keen distress for him; with the hope, indeed, that a calm night and the poppies of Morpheus would restore to us our amiable speaker, less broken and discouraged." I think it well to enclose for you extracts from the comments on the election, of the *National*, organ of the Cavaignac party; of *La Reforme*, of the democrats; the *Union*, chief legitimist journal—and of *Proudhon*, the Ajax of socialism. They illustrate the state of affairs. The special organ of the *Mountain* and of Ledru-Rollin, confesses its surprise and sorrow at the result of the elections in Paris, and would renounce all hope of the infatuated million, if it did not feel unbounded confidence in the infallibility of principles. "The workmen, to punish Cavaignac, have thrown themselves into the arms of a man whose sole agency will be the resuscitation of the imperial despotism. They have been false to their duty and their interests."

Paris, December 14, 1848.

Louis Napoleon gains by the returns received last night and this morning from the provinces. The *Journal des Débats* supposes that his poll will at least quintuple that of Cavaignac. We have the entire vote of Paris and the precincts—in round numbers—a hundred and seventy-two thousand for the *prince;* for Cavaignac eighty-seven thousand, about forty thousand for the candidates of the mountain and the socialists; scarcely more than five thousand for Lamartine. The peasantry of the interior marched to the polls with their Napoleon-tickets at the end of cleft-sticks, and drums beating; in many districts, when asked about their choice, they answered—"We do not mean to vote for a republican; we have had enough of the republic." "Well, then," they were told, "if you do not want the republic, vote for Bonaparte." Yesterday, I asked the worthy tailor whom I have employed for many years, and who is an officer in the national guards, how he had voted. "For Napoleon, to be sure." When he perceived that I was not edified, he added, "Possibly it was stupid on my part; but, in truth, I could no longer bear with this cursed republic." Such was the feeling of the *bourgeois* in general.

There are strange things in a different sense. Viscount d'Arlincourt's pamphlet, for the Duke of Bourdeaux, which is outrageously *legitimist*, has been indefinitely reprinted, owing to the demand in town and country; the price is reduced to ten cents; the author has recently been acquitted on a jury-trial for its contents, which abundantly warranted the indictment. The porter of the hotel in which I reside is an old soldier; his wife rules the roast—"reigns and governs." To my question whether he had voted, she answered—"Certainly." And for whom? "I wrote his ticket—*Henry V., King of France.*" Since 1830, the surviving officers of the Imperial Guard have met, at a banquet, on the 15th inst.; and the veterans at the *Hotel des Invalides* have celebrated, on the same day, the translation of the emperor's remains. These commemorations are renounced for to-morrow, in consequence of the discovery of a project in the faubourgs to undertake a grand parade to that edifice, with a flag surmounted by an eagle and the cry of *Vive l'Empereur!* It was

my persuasion, the day after the immense concourse in the vicinity of the legislative hall, when Louis was expected to enter for the first time, as a representative, that if he had appeared and encouraged the same cry, he would have been at once master in the capital; and the provinces might have quickly ratified the nomination. The elections have not belied that persuasion or notion. No provincial riots are as yet reported. Immediate meetings are invited of the Society of the Democratic Friends of the Constitution, and of the central committees of the revolutionary and socialist factions. Yesterday, the police forcibly closed one of the largest clubs; judges and juries continue to treat very roughly the editors of the anarchical journals and the orators of the clubs.

Mr. George Lafayette has just quitted my study having, with his usual goodness, brought me three tickets of admission to the National Assembly, for distinguished American officers now in Paris. Our conversation turned, of course, on the elections. His characteristic, fond trust in the cause of republicanism is not shaken; though he acknowledges that there is a serious check—an awkward retrogression. He thinks that there has been less of mere *hero-worship* in the votes of the interior than is commonly supposed. *Socialism* had prepared the minds of multitudes for any change which might act on the rich, and all capitalists, for the benefit of the poor; and the emissaries of Napoleonism announced the transfer of all taxes from the backs of the latter, and the distribution of immense treasures to be collected at home and abroad. A portion of the clergy and most of the legitimist proprietors flattered or indulged their delusions, counting on the effects of their certain disappointment, in favor of the true candidate, Henry V. Increased taxation had, doubtless, rendered the peasantry more or less hostile to the republic, which could never be ingratiated with the twenty-four millions, unless they were relieved; and this could be done only by a war on all capital other than their own, or by predatory hostilities abroad, to the very outfit of which the treasury was inadequate. Louis Napoleon, and M. Thiers, who will either prompt or head his ministry, cannot satisfy the promises and expectations that belong, more or less, to this new *revolution;* genuine republicanism will come round again, and prove wiser and more fortunate. Had the election of president been undertaken as soon as possible after the four days of June, Cavaignac would have triumphed.

In this opinion of M. Lafayette, I cannot concur readily; but it was my conception, that the general mistook his own interests and those of the republican party, when he deterred the majority of the Assembly from postponing the election until after they had framed the organic laws—an indeterminate or *lengthy* term, which left open the chapter of accidents on his side, and during which the effervescence of Napoleonism might have subsided. In July, the Assembly would have appointed him president *ad interim* for two years, with the acquiescence, if not the cordial approval, of the greater part of the country. Alarm was everywhere rife, for all property—all security. It was believed that Cavaignac, earnestly supported by a large, compact majority of the representatives, was able and resolved to contend against anarchy and rapine. He, however, if solicitous or willing to be at the head of the nation, still would not consent to an irregular or precarious arrangement. M. Lafayette pleasantly remarked that his adherence seemed to bring ill-luck; all the ministries he had adopted were short-lived. The *Journal des Débats*, of this morning, gives the names of several personages who it believes have accepted places in Louis Napoleon's cabinet. Odilon Barrot and Leon Faucher are of the number. If composed as is announced, the ministry will be less qualified than the present. Even Bugeaud, who has just arrived, would not be superior to Lamoricière in the war-department; and equals of Dufaure and Vivien in their spheres can scarcely be found. Dufaure is, on the whole, in and out of the Assembly, the ablest, and certainly not the least honest, of the civilians and administrators.

When Napoleon's remains were brought to France, with divine honors, I might almost say—with such flourish of trumpets and imposing rites, that every man, woman and child was inflamed and infatuated anew, it struck me that Louis Philippe and M. Thiers, who soon afterwards disputed with each other the credit of the solemn and gorgeous translation, and the two chambers that prolonged its *prestige* by debates and votes about altars and mausoleum, would one day rue their instrumentality. The name and the image were most before every man from the year 1797; you must have travelled over France, as I have done, in every direction, to comprehend how mementos, in the forms of pictures, busts, inscriptions, almanacs, narratives, songs, local honors, are multiplied and diffused; not a private or public edifice in which his name and image do not predominate. Thirty-three years have elapsed since his reign; his omniverous and iron despotism is forgotten; his veterans and all the retired soldiery spread in the rural districts have constantly turned the national spirit, so enamored of war and glory, to the homage which makes nearly the business of their lives. All the public ills experienced since have been referred to the rulers of the several periods. The republicans constantly promoted the rustic superstition by exalting his conquests and foreign policy, and ministering, through the splendors of his reign, to the national prepossessions and propensities. Beranger, the poet, is a principled, earnest republican; yet his tributes of verse to the conqueror and the empire, and their wars and hosts—lyrical master-pieces, of which the unexampled popularity and circulation were produced by the subject as well the genius—have materially contributed to the very result which he probably laments from the bottom of his soul. The palace of the Elysee-Bourbon, in the Faubourg St. Honoré, has been selected by the Assembly

for the residence of the president of the republic. Napoleon was particularly fond of this beautiful structure, and occupied it during the *hundred days*. Louis-Lucien, brother of the Prince of Canino, has been elected to the Assembly in Corsica. As I have heretofore mentioned, the most formidable and growing party, after all, is that of anarchical and levelling *socialism*. Proudhon writes, in his Journal of the 12th inst.—"The lottery is drawn; we have raised pure *socialism* to the rank and substance of a political party; socialism is no longer such and such a sect; it is an antagonist *power* in the state, in the modern system; the *prolétairs*, of cities and fields, may at one juncture —by sudden and peculiar impulse—vote for a Napoleon—a name, a shadow; but they continue to imbibe and relish our doctrines, which accord with all their passions and real or imaginary griefs. We shall prevail."

The peasantry in some departments, when about to vote for Bonaparte, observed, "If, in six months he does not do our business for us, so much the worse for him; we shall shake him off as we have done with the others."

All the present ministers are quitting the public hotels which they occupied. It is stated, in the last and best advices from Italy, that the pope will soon be reinstated at Rome, stronger and *wiser* than before. The legations, comprising the vast majority of his subjects, declare for him, and even Rome is re-revolutionized.

The *National* says:—

Universal suffrage has now spoken, and everything leads to the opinion that M Louis Bonaparte will have a considerable majority. The result is contrary to our wishes, but it will not inspire us with anger, and, above all, it will not cause us to despair of the future. We supported with all our power, the candidateship which responded best to our ideas, which appeared to offer to the country the most certain and most complete guarantees of order and stability. If the majority declares against us, we shall respect its decision, and the man whom it may have invested with the functions of first magistrate, shall not be, in our eyes, anything else than the legal representative of the French people, charged to act in its name, as the National Assembly is charged to deliberate and to determine. We feared that the success of M. Louis Bonaparte would expose us to civil disorder and disturbances; we still fear so. The majority, which at present supports him, is composed of elements the most various, or, to speak more correctly, the most hostile. Peasants, who are strangers to all political discussions, Socialists of every color, Bonapartists, Orleanists, Legitimists, have not been inspired apparently by the same thought, have not been guided by the same sentiment, have not served the same interest. United during the contest, they will necessarily dispute the fruits of the victory; all these opposite parties who had disguised themselves for the moment under a common livery, will not delay throwing off the mask, and reëntering the lists, more active, more ardent, more irreconcilable than they have ever been. God preserve our country from this terrible trial! If the result shows our pre-visions to be erroneous, we shall rejoice from the bottom of our hearts. If it should confirm them, if the old parties again raise their colors, our part is clearly traced; our standard is the constitution, the symbol of our political faith, the expression of the wishes, the wants, and the interests of democratic France. We will defend it with energy against all parties, and God aiding, we will maintain it. It follows from this, that as long as the power which issues from universal suffrage shall execute faithfully and sincerely the constitution, in virtue of which it exists, it will be respectable in our sight, and we shall see in it the consequence of the principle which we have proclaimed. It is not, in fact, under the republican *régime* as it is under the monarchical one. Under the latter, the principle personified in a man supports itself or falls with it; in the republican order the men pass and the principle remains, so robust and full of life, that it resists even the embraces of those who take it in their arms to suffocate it. We shall, therefore, observe the new power with attention, even with distrust—we have a right to do so—but without hostility. If it forwards the interests of the country, we will believe that it forwards ours; if it compromises the interests of the country, we will resolutely oppose it, with constitutional arms alone; we will not quit the bounds of legality, unless it leave them first, and then we will do so only to follow it, and to defend against aggressors the principle to which it owes its success.

The *Presse* says:—

The republicans de la Veille, so intolerant, so haughty, so exclusive, may measure by this great defeat the popularity they enjoy. They are beaten, though they have had in their hands all the active forces of the state. They are beaten, in spite of the support lent them at Paris and in other great towns by an important fraction of the moderate party. Without this last supply, which is considerable, and upon which it certainly could not reckon under any other circumstances, their minority would have been still more decided. The lesson is severe, but it must be confessed it is well merited. A country cannot submit to be thwarted, humiliated, and treated with indignity as it has been doing for the last ten months by their acts and by their persons.

We read in the *Union*:—

Before the electoral trial be brought to its end, let us once more state the signification of the political movement, which has carried towards Louis Napolean, victorious or not, so great a mass of the popular suffrages. We have already declared it; this movement is nothing else but a protest against the policy which prevailed from the day after the revolution of February. We do not intend to exaggerate the importance of this kind of reaction; we should, on the contrary, be disposed perhaps to extenuate its extent, for the violence of the flux and reflux of opinion does not suit our tastes; but we affirm a palpable fact, from which we shall draw a few deductions. A principal one is, that the authors of the policy of February have evidently done violence to the feeling of the nation. France thirsts, it is true, after liberty, equality, and fraternity, but it also thirsts after dignity, truth, and security. What was done in 1848? All the bases of order were shaken; an act of revolution against a false monarchy was turned into a dogmatic system against all society; not only were all passions, and all feelings of rage let loose on

France, but also, all kinds of folly and falsehood. The people were fed with Utopian schemes; labor was destroyed under pretext of organization; all the relations amongst men were broken; the poor were armed against the rich, dreadful angers were lit up; envy was excited; the poor were made to believe that they were about to recast the conditions of life—that they were to be freed from sufferings and privations—and that, in fine, idleness, vice, and sloth, were about to hold themselves at ease, and enjoy the same advantages as labor, virtue, and activity: all that declared under the general name of democracy, and written down nearly in full letters in the constitution and the laws. It must be declared that this improvised policy was decidedly opposed to the profound wishes of the French nation. Such is, as we have said, the signification of the candidateship of Louis Napoleon. Louis Napoleon, in fact, could not express anything more, as his person was unknown, his genius doubtful; there was not in France a Bonapartist party; imperialism was only a reminiscence; but the name of Napoleon was popular, and that name signified precisely the contrary of the things realized under the regime of February. It is only in that way that can be explained the movement which induced the people to support that candidateship; that fact explains the past, and will explain the future.

The *Réforme* says:—

Our duty is to incline before the result of the ballot, before the effect of ardent passions excited by grievances and hopes of a very different nature. But our distrust remains, and it is without much hope in the new government that we shall wait to see it at work. Not that we distrust its intentions; every government desires to last, to have strength and authority. That of the future president will resemble in that respect all which went before it! Will it know how to comprehend in what lies the veritable force? Will it know how to disengage itself from all the persons, all the prejudices, all the dynastic intrigues, with which it is about to be compassed? Between the two great parties which divide France will it choose that of the revolution? It is at least allowable to doubt it. For that there will be required a surety of view and a firmness of resolution to which the men whom France has seen in power for 50 years has not accustomed us. In such a situation, the attitude of the friends of the revolution ought to be a neutrality reserved and distrustful towards the new power, which is about to rise, but without any rancorous hostility or any party determined on. Our part is to await the development of the intentions and forces of our enemies, and to prepare ourselves by a sustained vigilance, by frequent communications, by the pacific and active propagation of the doctrines of the revolution, for the events in which we may be called on to interfere. Much is expected from our imprudence; let us be calm, as well as firm; let us be inaccessible to provocations, and the reactionary policy will fall of itself before the public contempt.

M. Proudhon has a long and obscure article in the *Peuple*, which he concludes as follows:—

France has now pronounced, and Louis Napoleon has received such a majority that at this moment he is the head of the government. Universal suffrage has chosen him president of the republic; we have reason to say that the hand of God has shown itself in this election. A few days back it was feared that the National Assembly would be called on to choose the president, and to pronounce against the relative majority in favor of its own sympathies; that danger no longer exists; the majority will be so imposing that the character will have only to enregister the will of the country. Already there has taken place in the Assembly a movement which has escaped no one's notice. The persons who used to surround the ministerial benches are falling off, the majority is taking another direction; an African breeze had bent it in one direction, a breeze from the north now bends it in another; the will of universal suffrage will be respected. The votes already known in Paris give Louis Bonaparte an immense majority. The most of the socialist workmen who were to vote for Raspail or Ledru-Rollin voted for Napoleon through pure horror of the name of Cavaignac. The people, following its sentiments, in place of reasoning, lent their support to the other party. It has given us the secret of popularity—to excite hatred or love opportunely is in France the whole system of politics. Thus, the question, simple as it was, has become complex. With Cavaignac, the capital found itself as Louis Philippe with Guizot, undefended; in less than four years we should have had the better of it. On the contrary, with Louis Bonaparte elected, we are thrown back to the regions of the unknown, we return to the Frank kings raised on the shields of their men-at-arms. Certainly we were consistent when, in inviting our friends to group themselves round the name of Raspail, we offered up our prayers in sheer despair of success for Cavaignac. But it must be admitted, if reason was for us, success is far from responding to our efforts. On one side, the popular masses, urged back by the monarchical instinct towards imperial fetichism, mingle together under the colors of Napoleon, and we do no longer know on whom or on what we can still reckon; on the other, capital, by the judges of Cavaignac, strikes us in our existence; liberty of speaking is refused to us at the court of assizes, imprisonment and fine are pronounced against us; and, in addition to all that, there remains for us calumny. Because we wanted to force fate a little for a long time, still will it be said of us that we are the courtiers of Napoleon, the creatures of Cavaignac. O crudulous mortals! O populations always children! O demagogues always calumnious!

From the Paris journal *Revolution Democratique.*

Can it be supposed that the position of the nephew of the great man will be very easy and tranquil? His majority is composed of heterogeneous elements, ready to become enemies the day after the victory. The legitimists will return to their idol, and will employ all the means in their power to pull down the puppet which they contributed to raise and fix upon the parade shield of the day. The partisans of the regency will not relinquish their preference, unless the new president dispenses largely amongst them the favors and places at his disposal. Now, it is very evident that this unfortunate Bonaparte will find it impossible to hold firm against the shower of his own promises by which he will be assailed; three quarters, at least, of the engagements contracted in the interest of his election cannot be satisfied. He will, therefore, have against him, without reckoning the legitimists and the regentists, all those whose hopes have been disappointed.

And the people who, in their ardent love and admiration of a name, think to find in Bonaparte the

reduction of taxes and the resumption of work and employment, will they be long in discovering the deception? Can it be supposed that they will remain faithful to the delusion which urges them on to-day in favor of the heir of Napoleon, when they will see their condition by no means improved? Evidently not. Besides, we must consider, that amongst the workmen who have voted for Bonaparte, there are many who have only voted in hatred of Cavaignac, and under the persuasion that the success of their candidate would shortly lead to the downfall of the imperial conspiracy.

What will then remain for Bonaparte? The support of the peasantry in the provinces—a support devoid of moral and intellectual authority and real force. And they, the peasants, will they forgive the continuation of the taxes which ruins them, and the necessary unwillingness to deliver them from the usury which impoverishes them. Now, if we look to the democratic socialist party, we behold a compact, intelligent body, full of confidence, full of faith and devotion in the future success of their cause, and also impressed with the necessity of union. Moreover, the foreign and financial affairs of the country will throw great impediments in Bonaparte's way; also, the evil designs of his friends of to-day, who will be his adversaries of the morrow—in fine, he will be obliged to submit to the fatal influence of his counsellors and advisers, Thiers & Co.—How will he ever be able to maintain his ground against so many causes of weakness? The sorry and pitiful hero of Strasbourg and of Boulogne will not assuredly be able to accomplish what Napoleon, with all his glory, power and transcendent genius, could not accomplish; what the restoration, supported by all the monarchies of Europe and the sympathies of the aristocracy could not achieve; what Louis Philippe, with all his machiavelian skill and craft, could not effect. In future, no individual will be able to stop this progressive impulsion, whose march propels the people onward to happiness and an improved condition by liberty and equality.

From the London Times.

FRENCH ELECTIONS.

The principle of the election is unquestionably monarchical, and the struggle which is just ended lay between the doctrines or the symbols of monarchy and republicanism; but if that abstract point be determined, at least by a majority of votes, the personal claims of the various pretenders are as diametrically opposed to each other as ever, and the partisans of the Bonapartes, of Henry V., and the Orleans dynasty are destined to wage among themselves a protracted and uncertain contest. For a time the great question of republic or no republic may swallow up all others; but the decision which condemns the existing institutions and leaders of the state calls into existence a host of pretenders and an array of fierce passions. Everything is possible, if the republic be impossible; and in the depths of the great cities and centres of population it must not be forgotten that a party exists, formidable in its numbers, and more formidable by its energy, which attributes the failure of the republic to its moderation, which broods over the sanguinary traditions of '94, and which threatens to solve these difficulties after its own terrible fashion, by proscription and death. In short, whilst the principal guarantees of social order are suspended, shaken or divided, the ancient and malignant phalanx of the French revolution in all its terrors is compact, desperate, and resolved. Whatever the government of France may be, there lies its greatest and most immediate danger; and in its resistance to those enemies of mankind it will command the complete support of the friends of order in all countries. The most fatal blow to General Cavaignac was the mere suspicion that he had been implicated in the imprudent proposal to confer national rewards on those assassins and plunderers who were the heroes and martyrs of the modern Jacobins. But under all these vicissitudes that party of anarchy subsists; and ere long we shall probably learn that another desperate attempt has been made to recover the influence which it lost in June, and which this election seems likely to place altogether beyond its reach, unless it can be recovered, where it arose, on the barricades of Paris.

From the Boston Post.

Poems by Charles G. Eastman. Montpelier: Eastman & Danforth.

This prettily printed volume comes in a busy time, when messages, and congresses, and steamers, and other little matters, have consumed all newspaper space, and have put us a week behindhand. Nothing but stern necessity could excuse our not giving "a first-rate notice" to some of the sweetest poetry ever written in this country.

Some of Mr. Eastman's productions are as well known as household words. "The Picture" and "The Pauper's Burial," in particular, have been repeatedly copied into almost all the newspapers in America. And there are many other poems which will be heartily welcomed by the reader as old acquaintance, albeit he may not know them as well by name as the others we have mentioned. The general characteristics of verse before us are smoothness, delicacy, simplicity and directness. It has unpretending originality of thought and treatment, adorned with considerable fancy.

And it is pleasant, in these days of vagary, to see a writer of Eastman's ability and reputation holding fast to the old and true landmarks of art and taste. His fun, pathos, delicacy, sincerity and patriotism, are those of reality, intelligibly conceived and simply expressed. Some of his songs have the genuine smack of the olden time. "Mary of the Glen," "Lily," "Bring me a cup," and "The Blind Beggar," are, perhaps, the best things in the book, with the exception of "The Picture," which is to us as beautiful a poem in its way as anything ever produced.

Thank the stars, Eastman is no "follower" of anybody but nature, no imitator of Tennyson, Longfellow or any other of the high mightinesses in the present fashionable school of poetry.

CONTENTS OF No. 244.

PROSPECTUS.—This work is conducted in the spirit of Littell's Museum of Foreign Literature, (which was favorably received by the public for twenty years,) but as it is twice as large, and appears so often, we not only give spirit and freshness to it by many things which were excluded by a month's delay, but while thus extending our scope and gathering a greater and more attractive variety, are able so to increase the solid and substantial part of our literary, historical, and political harvest, as fully to satisfy the wants of the American reader.

The elaborate and stately Essays of the *Edinburgh*, *Quarterly*, and other Reviews; and *Blackwood's* noble criticisms on Poetry, his keen political Commentaries, highly wrought Tales, and vivid descriptions of rural and mountain Scenery; and the contributions to Literature, History, and Common Life, by the sagacious *Spectator*, the sparkling *Examiner*, the judicious *Athenæum*, the busy and industrious *Literary Gazette*, the sensible and comprehensive *Britannia*, the sober and respectable *Christian Observer;* these are intermixed with the Military and Naval reminiscences of the *United Service*, and with the best articles of the *Dublin University*, *New Monthly*, *Fraser's*, *Tait's*, *Ainsworth's*, *Hood's*, and *Sporting Magazines*, and of *Chambers'* admirable *Journal*. We do not consider it beneath our dignity to borrow wit and wisdom from *Punch;* and, when we think it good enough, make use of the thunder of *The Times*. We shall increase our variety by importations from the continent of Europe, and from the new growth of the British colonies.

The steamship has brought Europe, Asia, and Africa, into our neighborhood; and will greatly multiply our connections, as Merchants, Travellers, and Politicians, with all parts of the world; so that much more than ever it now becomes every intelligent American to be informed of the condition and changes of foreign countries. And this not only because of their nearer connection with ourselves, but because the nations seem to be hastening, through a rapid process of change, to some new state of things, which the merely political prophet cannot compute or foresee.

Geographical Discoveries, the progress of Colonization, (which is extending over the whole world,) and Voyages and Travels, will be favorite matter for our selections; and, in general, we shall systematically and very fully acquaint our readers with the great department of Foreign affairs, without entirely neglecting our own.

While we aspire to make the *Living Age* desirable to all who wish to keep themselves informed of the rapid progress of *the movement*—to Statesmen, Divines, Lawyers, and Physicians—to men of business and men of leisure—it is still a stronger object to make it attractive and useful to their Wives and Children. We believe that we can thus do some good in our day and generation; and hope to make the work indispensable in every well-informed family. We say *indispensable*, because in this day of cheap literature it is not possible to guard against the influx of what is bad in taste and vicious in morals, in any other way than by furnishing a sufficient supply of a healthy character. The mental and moral appetite *must* be gratified.

We hope that, by "*winnowing the wheat from the chaff*," by providing abundantly for the imagination, and by a large collection of Biography, Voyages and Travels, History, and more solid matter, we may produce a work which shall be popular, while at the same time it will aspire to raise the standard of public taste.

TERMS.—The LIVING AGE is published every *Saturday*, by E. LITTELL & Co., corner of Tremont and Bromfield sts., Boston; Price 12½ cents a number, or six dollars a year in advance. Remittances for any period will be thankfully received and promptly attended to. ☞ To insure regularity in mailing the work, orders should be *addressed to the office of publication*, as above.

Clubs, paying a year in advance, will be supplied as follows:—

Four copies for	$20 00
Nine " "	$40 00
Twelve " "	$50 00

Complete sets, in fifteen volumes, to the end of 1847, handsomely bound, and packed in neat boxes, are for sale at thirty dollars.

Any volume may be had separately at two dollars, bound, or a dollar and a half in numbers.

Any number may be had for 12½ cents; and it may be worth while for subscribers or purchasers to complete any broken volumes they may have, and thus greatly enhance their value.

Binding.—We bind the work in a uniform, strong, and good style; and where customers bring their numbers in good order, can generally give them bound volumes in exchange without any delay. The price of the binding is 50 cents a volume. As they are always bound to one pattern, there will be no difficulty in matching the future volumes.

Agencies.—We are desirous of making arrangements in all parts of North America, for increasing the circulation of this work—and for doing this a liberal commission will be allowed to gentlemen who will interest themselves in the business. And we will gladly correspond on this subject with any agent who will send us undoubted references.

Postage.—When sent with the cover on, the Living Age consists of three sheets, and is rated as a pamphlet, at 4½ cents. But when sent without the cover, it comes within the definition of a newspaper given in the law, and cannot legally be charged with more than newspaper postage, (1½ cts.) We add the definition alluded to:—

A newspaper is "any printed publication, issued in numbers, consisting of not more than two sheets, and published at short, stated intervals of not more than one month, conveying intelligence of passing events."

Monthly parts.—For such as prefer it in that form, the Living Age is put up in monthly parts, containing four or five weekly numbers. In this shape it shows to great advantage in comparison with other works, containing *in each part* double the matter of any of the quarterlies. But we recommend the weekly numbers, as fresher and fuller of life. Postage on the monthly parts is about 14 cents. The *volumes* are published quarterly, each volume containing as much matter as a quarterly review gives in eighteen months.

WASHINGTON, 27 DEC., 1845.

OF all the Periodical Journals devoted to literature and science which abound in Europe and in this country, this has appeared to me to be the most useful. It contains indeed the exposition only of the current literature of the English language, but this by its immense extent and comprehension includes a portraiture of the human mind in the utmost expansion of the present age.

J. Q. ADAMS.